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Research reviews in this volume are a consolidation of Research Visibility articles which have been regularly published in the American Vocational Journal during the period September 1968 through May 1969. Major topics are: (1) Disadvantaged Youth: Rural Poverty and the Urban Crisis, (2) Vocational Education for Girls and Women, (3) Postsecondary and Adult Education, (4) Human Resources and Vocational Guidance Services, (5) Administrative Problems in Vocational Education, (6) Research in Vocational and Technical Education, (7) The Vocational Education Curriculum, (8) Preparation of Professional Personnel for Vocational Education, and (9) Evaluation and Accreditation. Research reviews in each area are organized by sub-topic. In addition to the research reviews, editorial comment by the author and a bibliography of completed studies and studies in process are included. (DM)

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RESEARCH VISIBILITY

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INTRODUCTION

THIS VOLUME is the second consolidation of *Research Visibility* articles which have been regularly published in the *American Vocational Journal* during the period September 1968 through May 1969. It represents a continuation of the original purpose of the series to provide a meaningful source of research-related information to our professional membership and to others who are interested in the improvement and extension of vocational and technical education to the youths and adults of our Nation.

If this volume, and the one which preceded it, have added to the accumulation and function of professional and technical knowledge about vocational and technical education, and if they have implemented understanding and change in operating programs to even a small degree, the purposes of the research-reporting project will have been well served. It is our continuing hope that both volumes will find many uses as professional references for the years ahead in the adjustment and re-vitalization of education at its many levels—public and private—in our society.

This work is the product of many persons. We are indebted for their fine cooperation and contribution. Basically, the series would not have been possible without the financial and interested professional support of the U.S. Office of Education, Division of Comprehensive and Vocational Education Research, in Washington.

The *first* volume of articles was drafted by C. Thomas Olivo, AVA vice president for Trade and Industrial Education (Temple University), and Gordon Law (Rutgers, The State University) from a design submitted by Miss Mary Allen, AVA director of public information. George L. Brandon, AVA professor in-residence (Pennsylvania State University) and Miss Anne Ware, research assistant, have made possible the publication of this *second* volume.

The *Journal* editorial staff, Harry H. Cutler, managing editor, and Miss Billie Bryce, have worked diligently during the two years of publication. The Center for Vocational and Technical Education at The Ohio State University, through the efforts of Robert E. Taylor, director, and Mrs. Celianna Wilson, has supplied valuable abstracting service and reports on a consistent basis. The Manpower Administration, U. S. Department of Labor, through Howard Rosen, director, Office of Manpower Research, and Mrs. Mary Bedell, has provided research reports and other helpful suggestions. Research personnel of the U.S. Office of Education, David S. Bushnell, Sidney C. High, Duane M. Nielsen, Lawrence Braaten, and Otto P. Legg, have been especially helpful with their many suggestions and provision of resources for the series and its evaluation.

In this volume readers will find a rich resource which reflects the stepped-up effort of very diverse research activity and reporting in vocational and technical education. Much of this activity has been supported by the research and training provisions of the Vocational Education Act of 1963. The traditional spirit of inquiry of vocationalists—often thwarted by lack of resources and academic sophistication in the past—has come to some measure of fruition and success, hopefully sufficient to highly motivate them for improvement in the years ahead.

The new legislation to extend the many benefits of vocational and technical education to all individuals of all segments of our society finds itself in a dramatic and turbulent climate. If we lack the true spirit of inquiry to discover new, improved and more effective ways to extend educational opportunity in this aspect of education and its vitality to all Americans, no measure of resources, however unlimited and rich, will suffice to achieve our goals. We are optimistic that the publication of this volume, and the one which preceded it, are first important steps in the realization of the importance of research and diffusion and the ultimate criterion—*research utilization.*

Lowell A. Burkett

Lowell A. Burkett
Executive Director
American Vocational Association

RESEARCH VISIBILITY

SYNTHESIS / APPLICATION / DISSEMINATION

*"Research Visibility" is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The "Research Visibility" report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-070633, project 7-0633; "Synthesis and Application of Research Findings in Vocational Education").

Disadvantaged Youth: Rural Poverty and the Urban Crisis

The studies reported in this issue have been organized into five topics, namely, manpower reports, the training of youthful offenders, curriculum development projects, sociological studies, and centers for guidance and training. In addition to projects sponsored by the U.S. Office of Education are those which have come from the U.S. Department of Labor. These include the "1967 and 1968 Manpower Reports of the President and Secretary of Labor," "Manpower Requirements for National Objectives in the 1970s," and two projects for the training, counseling and job placement of youthful offenders.

Among the flood of other publications which relate to the problems of disadvantaged youth, several which appear to be especially pertinent are mentioned here. Most important is the Kerner, or U.S. Riot Commission Report. Available at most newsstands, the Kerner report should be "must" read-

Bound Volumes of 1967-68 Issues Are Available

AVA has published a limited supply of paper-bound consolidations of the Research Visibility sections that were published from September 1967 through May 1968. A charge of $1.25 for each copy of the 147-page publication is made to defray the costs of printing, binding, postage and handling.

Orders should be sent to: Research Visibility, American Vocational Association, 1510 H St., N.W., Washington, D.C. 20005.

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Dr. Gordon F. Law is editor of "Research Visibility." The organization for this department of the JOURNAL, the pattern for reporting and the writing represent his work.

ing for all educators. Warning the nation that we are fast approaching a divided society, the report recommends a number of actions and new directions that need to be taken, many relating to vocational education.

When speaking of the polarization of white and Negro society the report states: "Powerful forces of social and political inertia are moving this country along a course of existing policies toward a divided country . . . This course would lead to the permanent establishment of two societies: one predominantly white and located in the suburbs, in smaller cities, and in outlying areas, and one largely Negro located in central cities. We are well on our way to such a divided nation."

The U.S. Welfare Commission document, *Rural Youth in Crisis*, should dispel any notions that all the problems of disadvantaged youth are concentrated in the Big Cities. Derived from a series of 27 papers prepared for the National Committee for Children and Youth, *Rural Youth in Crisis* is a valuable source of information on such topics as rural community backgrounds, education, physical and mental health, and problems associated with rural people adapting to urban ways.

The Chamber of Commerce of the United States has prepared a five-volume set of books which relate to cities, poverty and the disadvantaged. These Task Force on Economic Growth and Opportunity publications, which may be purchased from the Chamber, 1615 H St., N.W., Washington, D.C. 20006, are all worthy of attention by vocational educators.

Probably the most relevant is the one titled, *The Disadvantaged Poor: Education and Employment*, which sells for $5.00 a copy. Topics discussed in this book include the improvement of basic and vocational education, sources of money for ghetto schools, and the involvement of community leaders. The most heartening aspect of the Chamber of Commerce program is the fact that the business community is here assuming an active part in the war on poverty, an essential step in the process of change.

TOPIC ONE: Manpower Reports

The 1967 Manpower Report

1:1 "MANPOWER REPORT OF THE PRESIDENT, AND A REPORT ON MANPOWER REQUIREMENTS, RESOURCES, UTILIZATION AND TRAINING" BY THE U.S. DEPARTMENT OF LABOR, WASHINGTON, D.C. 1967. 299 PAGES.

The combined 1967 Manpower Report of President Johnson and the Report by the U.S. Department of Labor, is an important source of statistical data and of guidance and direction on manpower problems. Most relevant are the President's specific recommendations on expanded work-related educational programs and the Labor Department's endorsement of greatly expanded opportunities for vocational education, especially those utilizing cooperative work-study plans.

The President's Report gives testimony to the paradox of prosperity—that in a period of unparalleled affluence, a significant segment of the population suffers from unemployment and underemployment. Namely:

—More than 12 percent of our young people aged 16 to 19 were still looking for jobs at the year's end.

—Among Negroes and other minority groups, the unemployment rate was almost double the overall rate.

—In slums and depressed rural areas, joblessness ran close to 10 percent. And one out of every three persons in those areas who are working, or ought to be working, today faces some severe employment problem.

Much of this unemployment occurred not because jobs were unavailable, the report notes, but because people were unable or, for various reasons, unwilling, to fill jobs:

—Often, the job is in one place, but the worker is in another.

—The job calls for a special skill, a skill the unemployed person does not have.

—The employer insists on a high school diploma, but the jobseeker quits school without this qualification.

—An employer demands a "clean record," but the job seeker has a record marred by a juvenile arrest.

—A job offers one day's work a week, but the worker needs five days' pay to support his family.

New Directions Recommended

The President's Report recommends five new directions in manpower policy. The first one is to bridge the gap between education and work:

"Few nations—perhaps none—can match the achievements of our educational system. None equals the record of our economy. Yet our youth unemployment rate is the highest of any modern nation.

"We pay too little attention to the two out of three young people who do not go to college and the many others who do not finish college.

"Too many young men and women face long and bitter months of job hunting or marginal work after leaving school. Our society has not yet established satisfactory ways to bridge the gap between school and work. If we fail to deal energetically with this problem, thousands of young people will continue to lapse into years of intermittent, unrewarding, and menial labor.

"Our interest in a young person should not stop when he finishes—or drops out of—school. Our concern should become even greater then.

"Other nations have developed broad industry training and internship programs, offering education and experience to young people entering a trade or profession. Still others have established close ties between educational institutions and employment agencies at all levels.

"We can profit by these examples if we:

—"Establish in our educational programs opportunities for students to learn more about the world of work.

—"Build a system in which education and work experience are brought together to provide the kind of preparation fitting the needs of our society.

"*To achieve these ends, I am directing the Secretary of Labor and the Secretary of Health, Education, and Welfare to make a thorough study of the relationship between our educational programs and our manpower programs, between learning and earning in America.*"

The Secretary of Labor's Report has three main sections: Review of Manpower Developments in 1966; Unused

Manpower, and Occupational Shortages and Training Needs. The report also contains a statistical appendix of 90 pages, a valuable source of labor force, employment and unemployment data.

This fifth annual report by the Department of Labor is concerned with two great contravening manpower problems now facing the country: unused human resources and unmet manpower requirements.

It has three major parts: (a) A review of manpower developments in 1966, with chapters on trends in employment and underemployment and new directions in manpower programs; (b) a discussion of unused manpower, with chapters on joblessness and poverty in urban slums, underemployment and poverty in rural areas, and unemployment and underutilization of manpower, and (c) a discussion of occupational shortages and training needs, with chapters on skill shortages and occupational training, and also professional supporting personnel.

Needed Directions of Action

Needed directions of future action are suggested in all chapters. They include greatly expanded formal training programs at every level. Specific recommendations are made for further development of manpower programs to serve the disadvantaged—multiservice neighborhood centers, programs for welfare clients and other refocused MDTA programs. New forms of job development—such as "Jobs Now" in Chicago and the Hartford and Oakland Plans, designed to enlist industry cooperation—are described in the report.

The Labor Department document reports a great expansion and redirection of vocational and technical education. "Enrollments in vocational education courses increased to more than six million in fiscal 1966—including about 430,000 post-high school students, double the number enrolled in the previous year."

Also mentioned are a number of developments leading to a more flexible and open-ended vocational curriculum, and some of the research projects which have been sponsored by the U.S. Office of Education.

The 1968 Manpower Report

1:2 "MANPOWER REPORT OF THE PRESIDENT AND A REPORT ON MANPOWER REQUIREMENTS, RESOURCES, UTILIZATION AND TRAINING" BY THE U.S. DEPARTMENT OF LABOR. 1968. 323 PAGES.

The combined 1968 Manpower Report of the President and the Department of Labor continues to stress the tragic waste in human resources that prevails in a time of unprecedented prosperity. Both President Johnson and Secretary of Labor Wirtz maintain that youth unemployment, especially for those within the cycle of poverty, is a social and economic concern of first priority.

The President's Report asks the question: "In an economy capable of sustaining high employment, how can we assure every American who is willing to work the right to earn a living?" We have always paid lipservice to that right. But there are many Americans for whom the right has never been real:

—The boy who becomes a man without developing the ability to earn a living.

—The citizen who is barred from a job because of other men's prejudices.

—The worker who loses his job to a machine and is told he is too old for anything else.

—The boy or girl from the slums whose summers are empty because there is nothing to do.

The man and woman blocked from productive employment by barriers rooted in poverty: lack of health, lack of education, lack of training, lack of motivation.

"Their idleness is a tragic waste both of the human spirit and of the economic resources of a great nation."

When speaking of needed new directions in manpower administration the President said, "The central fact about all our manpower programs is that they are local in nature. . . . What is required is a system to link Federal efforts with the resources at the State and local levels. We already have a framework, the Cooperative Area Manpower Planning System (CAMPS). Now I propose that we establish it for the long term. CAMPS will operate at every level: Federal, regional, State and local. At each level, it will pull together all the manpower services that bear on jobs. . . . As part of the manpower budget, I am requesting $11 million to fund the Cooperative Area Manpower Planning System in fiscal 1969."

Secretary Wirtz' Report

Secretary of Labor Wirtz' report focuses attention on specific targets of unemployment:

—The hard-core unemployed, who require skill training, literary training and successful work experience to develop new motivation and become stable, productive workers.

—The seasonally unemployed, who are fully prepared to work all year and yet constitute one-fifth of present unemployment.

—The hundreds of thousands of unemployed young people who are still struggling to cross the gap between school and work.

—The unemployed and inactive older workers, whose considerable energies and talents are wasted as a result of inadequate opportunities, outmoded traditions and outright discrimination.

—The unemployed and underemployed members of minority groups—Negroes, Puerto Ricans, Mexican Americans, American Indians, and others—who need special help to catch up with the majority.

—The jobless handicapped, many of whom could become employable and employed with rehabilitation and other services.

Following a review of the various types of manpower programs that have been conducted, which include the Neighborhood Youth Corps, the Job Corps, and the new Work Incentive Program, Secretary Wirtz gives special attention to the Job Opportunities in the Business Sector (JOBS) program.

"The JOBS program will guarantee what in the past has been too often missing or uncertain—a real job. It will guarantee that the serious efforts of individuals will pay off; enable individuals to work at real jobs while they continue their abilities; enlist the aid of private industry in following

through from training to employment.

"To accomplish this, American business—Management and Labor—must:

—Reexamine every barrier standing in the way of hiring the hard-core unemployed and remove these obstacles wherever possible.

—Bring its training capabilities to bear on these workers to compensate for their inadequate preparation.

—Provide extra support—including 'coaches' and new types of firstline supervisory training—so that tendencies to fail or to quit can be reversed.

"As its share in the partnership, the government must:

—Assist business in paying for the extra costs of special training and support provided by employers to the hard-core unemployed.

—Streamline administration, cut out the 'red tape' that can make partnership with the government frustrating and well-nigh impossible.

—Accept, and more in the next several years to fulfill, a commitment to *guarantee* to all an opportunity to train and prepare for work, shifting the measure of programs from incremental increases of training to achieving the goal of *guaranteed training* for all."

Bridging the Gap

The section of the Department of Labor Report titled "Bridging the Gap from School to Work" should have special relevance for educators. Here, the problem is stated in the paradox that the United States keeps larger proportions of its children in school longer than does any other nation; yet, the unemployment rate among youth is far higher here than in any other industrial nation.

To correct this situation, the report makes four general recommendations:

1. Improvements in the educational system and great expansion of cooperative education programs to prepare young people better.

2. Special programs to take care of approximately six million dropouts expected to seek work opportunities without adequate preparation over the next decade.

3. Improvements in the process of communicating occupational information to young people while they are in school and putting them in touch with jobs and additional training opportunities as they come out.

4. Improvements in early employment experience by adding to this experience new opportunities to learn.

The concluding remarks of this section have some specific recommendations for schools—steps that can be taken to narrow the gap between school and work. Among these are statements supporting *increased knowledge about the environment of work; increased opportunity for young people in school to gain actual work experience; increased participation of business and other private groups in the education world;* and *improved knowledge and training at the point of entry into the job market.*

Finally, there are two broad considerations that affect all of the foregoing—*putting the nation's secondary schools on a year-round basis,* and directing *educational efforts at all of the nation's youth.*

National Goals in the 1970s

1:3 "MANPOWER REQUIREMENTS FOR NATIONAL OBJECTIVES IN THE 1970s, BY LEONARD A. LECHT. CENTER FOR PRIORITY ANALYSIS, NATIONAL PLANNING ASSOCIATION, WASHINGTON, D.C. 1968. (U.S. DEPARTMENT OF LABOR) 476 PAGES.

This report of manpower requirements has been prepared by the National Planning Association's Center for Priority Analysis. It was undertaken in recognition of the fact that manpower bottlenecks in critical occupations can seriously affect the achievement of national goals. When speaking of the need for goals research, the report states:

The activities described in the pursuit of national goals represent activties which tend to be adopted piecemeal as pragmatic responses of specific individual and national problems, rather than the pursuit of objectives consciously selected as goals. . . . In the absence of a framework of information concerning the costs, benefits and manpower needs of individual programs which relates them to the national objectives they serve, the choices which are made tend to create unanticipated problems which cancel out the anticipated benefits, or they reflect the choices of narrowly based pressure groups and specific interests."

The areas for which goals were defined were derived from the work of President Eisenhower's Commission on National Goals. These areas are:

1. Agriculture
2. Area Redevelopment
3. Consumer Expenditures
4. Education
5. Health
6. Housing
7. International Aid
8. Manpower Retraining
9. National Defense
10. Natural Resources
11. Private Plant and Equipment
12. Research and Development
13. Social Welfare
14. Space
15. Transportation
16. Urban Development

In a previous investigation, the National Planning Association undertook a two-year study of the dollar cost of achieving 16 national goals in areas affecting most aspects of American life. This study revealed that attempts to completely achieve all goals at the same time would not appear economically feasible, and the establishment of priorities was recommended.

"Should urban land be used for more highways and parking lots, or for additional parks and other recreation areas? Should the larger federal tax revenues produced by a progressive tax system in a growing economy be largely offset by reductions in personal and corporate income taxes leading to higher levels of personal consumption and private capital outlays, or should this growth in revenues be primarily utilized to more effectively eliminate the blighted areas in the central cities, to cope with poverty, and to enlarge facilities for education, health and mass transit? Each of these choices has its particular pattern of manpower requirements."

Economic Framework

When discussing the economic framework for the manpower projections, the report forecasts the amount of increase in each of the sixteen categories.

"By 1975 it is estimated that expenditures for achieving six of the goals would be greater than their 1962 equivalents by 50 billion dollars or more. The six are consumer expenditures, private plant and equipment, urban development, social welfare, health and education. . . . Creating sufficient output to attain all 16 goals in the 1970s would entail a GNP growth rate approaching 5.8 percent a year for the coming decade—a pace unlikely to be sustained without creating inflationary pressures or introducing far-reaching economic controls."

The report states that the national unemployment rate was projected at slightly less than four percent. "Re-

ducing unemployment to a minimum level could contribute significantly to enlarging the output available to pursue strategic national objectives in many areas. It could also help to eliminate the unrest in the inner cities caused, in part, by the high rate of joblessness for nonwhites, and especially for nonwhite teenagers. However, even with a trillion dollar GNP and a close-to-fully employed civilian labor force of over 90 million persons, the need for priorities—for choices—to balance aspirations and resources remains."

The chapter dealing with overall manpower requirements for achieving national goals spells out the general trend toward a better educated labor force, and some of the specific kinds of work likely to be in most demand. The occupations for which rapid increases in employment are anticipated include airplane pilots, college teachers, medical technicians, and road machine operators. These and other occupations fit into four of the national goals: *Health, Research and Development, Education,* and *Transportation.*

Examples of occupations for which slow growth or a decline in requirements is projected are railroad brakemen and farm laborers. But aside from such individual casualties to technology, a continued growth in employment opportunities for blue collar workers in many skill levels is forecast.

The section on Implications for Education and Job Training discusses the influence of education as a cause of changes in job requirements.

"As the supply of well-educated, or better-educated, persons increases in virtually all occupational fields, the greater availability of these persons to employers itself becomes an important factor in raising entrance requirements for many types of jobs. The college degree supplants the high school diploma regarded a generation earlier as the requirement for the more responsible white collar positions. Graduation from high school becomes the prerequisite for advancement to foremen's jobs, or for most types of work involving dealings with the public. By 1975, it can be anticipated that many, if not most, technicians and more skilled clerical workers will possess some college education, probably at the junior college level."

National Manpower Policy

When speaking of national manpower policy as it relates to vocational preparation, the report states that vocational education in the high schools, apprenticeship training and similar activities concentrate on preparing young people for careers in the more skilled craft, service or nonprofessional white collar occupations.

"These programs generally bypass students from poverty backgrounds, or adults who have left school with few job skills and little education. To cope with those problems, a series of new federally supported job training and basic education programs have grown in the past decade largely outside the regular school system, e.g. MDTA, or the Job Corps, to overcome the handicaps which reduce employability and earning capacity."

The report states that public education has generally failed to provide for the educational needs of working and unemployed adults. "Most of the measures enacted in the 1960s to expand facilities in education and training concentrate on the young—on keeping young persons in school, or offering educational and training services to individuals who have recently left school. Yet, absence of sufficient education is more common among older workers than among young adults. . . . Of some 15,000 school systems studied by the United States Office of Education in the early 1960s, only 4,800 reported any type of adult education program."

Citing data gathered by the National Planning Association, the report predicts that the nation's commitment to translate legal civil rights into greater equality of opportunity will influence the goals in education, health, housing, manpower retraining, social welfare, and other areas.

"The Negro population of 19 million in 1960 will probably rise to 26 million by 1975, with the proportion living in cities projected to grow from 73 to 85 percent in this period. Providing education, employment and housing for the increasingly nonwhite population in the central cities, together with the related problems of eliminating concentrations of poverty, maintaining civil order and reconstructing decaying urban facilities can reasonably be expected to require a re-evaluation of national objectives and priorities directed toward coping more effectively with a growing backlog of urban problems."

TOPIC TWO: Training Youthful Offenders

Project Challenge

1:4 "PROJECT CHALLENGE: AN EXPERIMENTAL AND DEMONSTRATION PROGRAM OF OCCUPATIONAL TRAINING, COUNSELING, EMPLOYMENT, FOLLOW-UP AND COMMUNITY SUPPORT FOR YOUTHFUL OFFENDERS AT THE LORTON YOUTH CENTER, AN INSTITUTION OF THE DISTRICT OF COLUMBIA DEPARTMENT OF CORRECTIONS," BY THE NATIONAL COMMITTEE FOR CHILDREN AND YOUTH. WASHINGTON, D.C. 1968. (U.S. DEPARTMENT OF LABOR) 276 PAGES.

Project Challenge was an 18-month demonstration program at the District of Columbia Department of Corrections Youth Center, a maximum security institution for youthful offenders in Lorton, Va.

The project was designed to offer Lorton Youth Center inmates a three-pronged program: first, a coordinated schedule of vocational training and remedial education; second, an intensive counseling schedule designed to instill positive social attitudes and to assist the trainees in identifying with the social and economic system to which they would return upon release; and third, a systematic follow-up program of job development and placement and individual, family and career counseling after release from the institution. The program was conducted from July 1, 1966, to January 15, 1968.

Project staff members were selected on their estimated ability to deal imaginatively with the problems and pressures of an institutional environment, as well as their competence,

training and experience, but irrespective of formal academic credentials. The use of non-professionals was extensive, both among vocational instructors and supportive personnel, and was intended to indicate a new direction for recruitment efforts to correctional administrators.

Broad selection criteria, designed to screen-in rather than screen-out those most in need of project services, were used. Special efforts were made to involve those inmates whose academic deficiencies would have excluded them from traditional institutional programs, as well as those who were chronic discipline problems.

On-site training courses were given in automotive services, barbering, building service and maintenance, clerical and sales, food services, interior-exterior painting, and welding. Of

229 applicants for training, 181 were selected and enrolled in the 7 vocational courses. Of these, 158 graduated and 69 were released (prior to or after graduation) during the contract period. Practical work and on-the-job training were supplemented by classroom instruction in trade-related basic education.

Experimental remedial education, vocational talent materials and tutorial services by VISTA volunteers were used concurrently with the regular training program. Individuals not certified as teachers but skilled in their trades and having an affinity with the target population were used as instructors for the project.

Trainees ranged in age from 17 to 26, with 82 percent in the 19 to 22 age group. Sixty-eight percent were born in Washington, D.C.; 25 percent were from southern states and seven percent were from other areas. A large proportion came from broken or disorganized family backgrounds. Frequency in change of their family residences reflects a high degree of intracity mobility. The first of several arrests by the police, followed by one or more commitments to institutions, commonly occurred before age 18.

While intellectually comparable to the general population of the Washington metropolitan area, trainees were two to three years retarded in academic achievement; they generally had withdrawn or been excluded from school during the junior high school period. An estimation of the group's marital status presents evidence that instability and lack of cohesiveness is a continuing process. Finally, the report states that these people were largely untrained and unskilled and have been employed only sporadically in jobs with little or no career potential.

Counseling Techniques

During training, an intensified program of group and individual counseling, utilizing a variety of techniques and approaches, was employed, including group dynamics, free discussion and role playing. Counseling efforts were designed to encourage the trainees to frankly express their feelings of hostility and alienation, particularly those relating to racial tensions.

"The residue of intensive feelings resulting from these discussions proved extremely difficult to handle through counseling efforts. As a result, staff members experimented with the use of cultural enrichment programs and sought to moderate and channel potentially destructive attitudes by inaugurating a program designed to provide pride and knowledge in Negro culture, tradition and history."

Over the course of the contract period, the project's job development staff contacted several hundred potential employers and found approximately 150 training-related positions, 120 of which were subsequently filled. The unwillingness of many men to accept work outside the District of Columbia limits was an unforeseen handicap. Reasons given most frequently were the difficulty and/or expense of transportation, and a personal conception of prevalent racial attitudes in the suburbs. Another major problem in placement was getting individuals to adjust to a regular work schedule.

Follow-Up Study

Follow-up study of released trainees revealed wide variance in degrees of success. Differences were observed between men in terms of the amount of training completed and the extent of direct application of training to post-release employment. "Another variable, one which we feel had a significant bearing on at least employment characteristics but on which little data is as yet available, is the differential time-span between graduation from training and release from the institution."

Although it was considered too soon to infer broad generalizations from the study, the data obtained through analysis of "successful" and "non-successful" graduates of the program were favorable.

"When the institutional operations of Project Challenge ended on Aug. 31, 1967, its vocational training components were absorbed in their entirety—including the instructors, training methods, course outlines and equipment—by the D.C. Department of Corrections, following an evaluation by an independent consultant.

"Many of the features and principles developed by the project to deal with employment and community support for released offenders were also recognized for their value to the rehabilitation effort, and it was anticipated that they, too, would be incorporated into the Department of Corrections when budgetary considerations permitted."

Vocational Training in Jail

1:5 "RESTORATION OF YOUTH THROUGH TRAINING" BY CLYDE E. SULLIVAN AND WALLACE MANDELL. WAKOFF RESEARCH CENTER, STATEN ISLAND. N.Y. (U.S. DEPARTMENT OF LABOR) 1967. 409 PAGES.

A discouraging problem in criminology is the high incidence of "repeaters." Once a person has served time, there is a good chance that he will subsequently be convicted of another criminal act and be returned to a correctional institution. Any program which would substantially reduce the number of persons who thus become habitual criminals must be looked upon as a major breakthrough—in both economic and humanitarian terms. For this reason, the Department of Labor study of restoration through training is one of great significance for vocational educators.

This report related the experience and findings of RYT (Restoration of Youth through Training), a research project financed by OMPER of the Manpower Administration, U.S. Department of Labor.

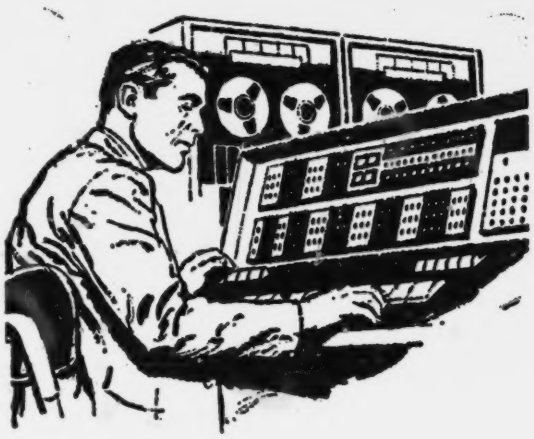
RYT began in December, 1963, as a joint venture of the City College of New York and the New York City Department of Correction, and finally was completed by the Wakoff Research Center. In general, the project was designed to provide special vocational training for a sample of young men serving time in the New York City jail and to study their subsequent performance and adjustment upon release from jail.

When speaking of the need for research relating to the therapeutic and social value of work, and the necessity of vocational training for criminals, the report reveals that there had been no previous definitive, direct confrontation of many of the central issues. "Education and vocational training has been tried in jail settings, but usually without research evaluations, and no one had seriously tried to test the proposition that the jail might be used to create a practical, effective entry to the world of work for young adults sentenced to jail."

Selection of Subjects

The study was designed on the classic experimental model. Subjects were randomly assigned to an experimental or control group with dependent variable measures taken before and after various phases of treatment.

From a population of more than 3,000 male inmates, 16 to 21 years old, committed to the New York City Department of Correction during an 18-month period, 300 young men who passed a basic skills examination were selected to be subjects of the study. This sample was randomly divided into control and experimental groups. Controls followed ordinary jail routines. Experimentals received training on IBM punched-card data processing machines and remedial reading help. Both groups were evaluated prior to their release in the community, and again one year later.



Six evaluation instruments were employed: IBM Aptitude Test, Beta Test of Intelligence, Gates Reading Survey, Subject Interview Schedule, Parent Interview Schedule, and Employer Interview Schedule.

The IBM training program was comprised of six training cycles. Each cycle lasted eight calendar weeks, divided equally in time for IBM machine training and IBM machine practice time. Inmates received instruction on six pieces of equipment: key punch, reproducer punch, sorter and counter, alphabetical accounting tabulator, verifier, and collator. Remedial reading instruction was also provided.

Work Assignments

During the period between instructional cycles, students were rotated in groups of six and given work on actual job applications for the Department of Correction.

Another important aspect of the training program was guidance and counseling. Three types of staff-trainee interaction were employed: group meetings, scheduled personal interviews and spontaneous spot counseling contacts.

"After the first days of operation, a decision was reached to permit content to evolve in terms of the specific pressures and concerns the trainees were experiencing. This proved to be an important learning experience for staff . . . who were surprised by the depth and intensity of feelings expressed by trainees. . . . There was an utter disbelief that people would help them. . . . Trainees either subtly or directly challenged RYT staff with: 'What are you getting out of this?'; 'Why are you doing this for me?'; 'Show me first, then I'll believe the pitch.'"

Training Pays Dividends

Data from the RYT provided research evidence that a program of vocational education in a jail, coupled with appropriate post-release services to manage re-entry into free society *does* make a difference in subsequent job performance and social adjustment of young offenders.

"Contrary to traditional expectations, and though the jail is a short-term institution with consequently brief periods of inmate availability for training, enough time is available to initiate a sequence or activity which can have significant rehabilitation im-

pact. A constructive program can be established to wisely use the time inmates spend in jail:

"1. The rate of return to jail can be reduced. Only 48 percent of the experimentals committed crimes which brought them back to jail or prison as compared to 66 percent of the controls who returned to jail or prison.

"2. Even those legal offenders who are most likely to continue a life of crime were helped. Only 55 percent of the drug addicts in the experimental group returned to jail. Eighty percent of the drug addicts in the control group returned to jail.

"3. New opportunities in the world of work were opened for the trainees. Seventy-one percent of the experimentals worked in companies using automated data-processing techniques as contrasted with 16 percent of the controls.

"4. Social mobility was fostered for the young men receiving training and transitional services. Forty-eight percent of experimentals were in white-collar jobs. Only 18 percent of controls found jobs in white-collar occupations.

"5. Only five percent of experimentals worked in jobs where physical labor was a major requirement, while 22 percent of the controls worked in such jobs.

"6. The number of young men locked into dead-end jobs was reduced. Twenty-five percent of the jobs held by experimentals usually led to promotion. Only three percent of the jobs held by controls usually led to promotions.

"7. Eighty-nine percent of the jobs held by experimentals provide on-the-job training.

"8. A year later, 17 percent of experimentals are in the company where they were originally placed. Only nine percent of controls are still with the same company."

Teaching Basic Talents

1:6 "DEVELOPMENT OF A CURRICULUM AND MATERIALS FOR TEACHING BASIC VOCATIONAL TALENTS" BY JOHN T. DAILEY AND CLINTON A. NEYMAN, JR. THE GEORGE WASHINGTON UNIVERSITY, WASHINGTON, D.C. 1967. 117 PAGES.

The George Washington University curriculum development project, in a series of introductory statements, recognized that youths from culturally deprived backgrounds lack basic educational skills as well as understanding of mechanical and technical concepts and principles.

"If our culturally deprived adolescents are to have a full chance to emerge from poverty there must be a massive upgrading in the levels of their developed basic skills that we often call talents. . . . Vocational and technical schools and the Armed Forces find that they must educate many marginally trainable youth, those who lack basic educational skills as well as rudimentary understanding of technical concepts and principles."

The stated objective of this research project was to develop and evaluate special new training materials to teach basic vocational skills in the area of abstract reasoning and mechanical comprehension.

Three different types of materials were developed:

1. A series of paper-and-pencil basic aptitude exercises designed to teach nonverbal abstract reasoning, basic mechanics, basic electricity, and 2- and 3-dimensional spatial reasoning.

2. A series of basic readers especially designed for vocationally oriented and culturally disadvantaged students in grades eight and nine who read at two or three grade levels below their placement.

3. Laboratory equipment and simple demonstration devices designed to teach ninth grade students those aspects of mechanical ability and basic mechanical and technical comprehension. The laboratory equipment demonstrated principles of devices such as gear trains, levers, belts and pulleys, inclined plane and screw threads, friction, magnetism, and simple electrical circuits. Student and teacher manuals were developed.

The materials produced were tried out using a representative sample of approximately 2,500 boys and girls enrolled in school systems located in San Antonio, Texas; Atlanta, Ga.; Wise County, Va.; Washington, D. C.; New York City; Bayonne, N. J.; Erie, Pa.; and Detroit, Mich.

The primary method of evaluation was comparison of pre-test and post-test scores of students. Factor analysis studies were also made of both results. Gains were also compared with the findings of Project Talent in both its cross-sectional and longitudinal studies of the American High School Student.

Key tests from the Project Talent Test Battery were used. These tests were: Abstract Reasoning, Mechanical Reasoning, Arithmetic Reasoning, Visualization in Two Dimensions, Visualization in Three Dimensions, Reading Comprehension, Vocabulary Information, Mathematics Information, Physical Sciences Information, Biological Sciences Information, Aeronautics and Space Information, Electricity and Electronics Information, and Mechanics Information.

The findings of the investigation, based on a statistical analysis of data, reveal that important aptitude test skills or vocational talents can be taught to a significant degree with relatively simple materials and procedures within typical public school systems. "This has many important implications for the theory of measurement as well as for the general fields of compensatory education and special training for the culturally deprived."

The nine specific conclusions and recommendations have special meaning to vocational educators:

1. Important vocational talents can be taught directly in schools or in other training programs using the new curriculum and materials developed for this purpose in this project. These talents include mechanical reasoning, mechanical information, nonverbal abstract reasoning, spatial visualization, physical sciences information, and electrical and electronics information.

2. No "general test-taking skill" was found. Training on one sort of skill did not affect test performance on different skills not taught. Training in mechanics, for instance, did not help in taking arithmetic or reading tests.

3. As compared with their usual annual gain on tests of basic vocational talents, girls tended to gain more than did the boys. If girls have equal exposure to learning opportunities in technological areas they seem to be able to develop basic vocational talents as well as do the boys.

4. On the tests related to the content of the laboratory course the ninth grade students who had the training showed more gain than did the eighth grade students who did not.

5. The materials were also used successfully in training programs for eighth grade boys who were underachievers, several groups of poor readers in grades 7 to 12, young adults who had failed the enlistment test for military duty, and young felons and delinquents.

6. Mechanical talent or aptitude appears to be a skill largely learned through a variety of out-of-school experiences. A rural or small-town environment is particularly rich in such experiences, and mechanical comprehension has been well named "barnyard physics." This study has demonstrated that our schools and other training programs can compensate for the lack of environmental stimulation in mechanics and technology that handicaps most of our youths today.

7. Nonverbal test skills seem to be as easily modifiable by training as are verbal test skills. It is likely that most nonverbal skills are as much influenced by past opportunities for learning them as are verbal skills.

8. Talent training can cause changes in the basic intercorrelational characteristics of tests and in their factorial structure. The amount of change appears to be greatest for those groups with least previous opportunity to learn the skills sampled by the tests. For tests of technological talent, such groups include girls and many groups of boys in especially culturally disadvantaged urban areas.

9. Culturally disadvantaged students can be trained to do substantially better on important tests of vocational aptitudes or talents. This could qualify appreciably greater numbers of young people for military, governmental or industry training programs.

Project PREP

1:7 "PROJECT PREP: A PROGRAM FOR RECOVERING AND EXTENDING ACADEMIC POTENTIAL FOR HIGH SCHOOL UNDERACHIEVERS SEEKING ENTRANCE AT A REGIONAL COMMUNITY COLLEGE" BY JOHN J. SHEA. GREENFIELD COMMUNITY COLLEGE, GREENFIELD, MASS. 1966. 44 PAGES.

According to the Greenfield Community College study, many two-year colleges admit students deficient in academic achievement, but few have designed special courses and curricula for them. In the survey of literature is information supporting the need for remediation and counseling as an integral part of the junior college program, and for the development of programs for carrying out such work.

The objectives of this study were to (a) determine if a planned summer remedial program of reading English and Mathematics can prepare high school graduate-underachievers for success in a two-year terminal junior college program, and (b) determine if personal-vocational counseling will have a differentiating effect on student goal achievement.

Forty participants selected from the public schools of three Massachusetts counties, and screened to determine that they were or would have been unsuccessful college applicants, were enrolled in the Greenfield Community College for a 7-week, 105 instructional hour remedial program. They were guaranteed admission to GCC as full-time students for the fall semester.

This PREP program was evaluated by:

—A series of pooled t-tests, to determine if, and where, remediation had produced academic growth.

—Analysis of variance and/or analysis of covariance techniques to assess the amount of academic growth due to counseling in the remediation-counseling group having the summer session.

—A two-phase evaluation of the effectiveness of counseling.

Based on statistical evidence, three conclusions were made:

1. The didactic remedial program can be considered a causative factor in upgrading participants' scores on the Lorge-Thorndike test of intelligence, the Davis reading test, and the Scholastic Aptitude Test.

2. The above occurrence was not differentially affected by the personal vocational counseling treatment.

3. In a one-semester follow-up study it had been demonstrated that personal-vocational counseling did not have differentiating effect on participants' grade point average.

Other more subjective observations coming from the study were made. It was suggested that improved and extended group counseling sessions should be tried, even though the experimental counseling treatment was not found to be statistically significant. The study also questioned the authenticity of the traditional barometers for predicting high school students' chances for success in two-year colleges.. "It is noteworthy that less than 40 percent of participant students did not successfully complete the semester. The reader is reminded that theoretically *none* of them should have been successful."

Citizenship Education

1:8 "REPORT ON THE CONFERENCE ON THE CITIZENSHIP EDUCATION OF THE YOUNG WORKER" BY THE CENTER FOR RESEARCH AND EDUCATION IN AMERICAN LIBERTIES. COLUMBIA UNIVERSITY, NEW YORK. N.Y. 1966. 126 PAGES.

The Arden House Conference was designed to investigate the educational opportunities now available to those who enter our political system as young workers—of whatever race or ethnic background. Conference participants were selected to obtain as wide a view as possible. "It became increasingly evident during the discussions that not only was this the first time that corporation, union and education leaders had sat down together to discuss this question, but that this kind of interaction is vital for meaningful reform and effective implementation of that reform."

The main body of this report is comprised of the transcripts of papers presented by conference participants. The first of these was a presentation by Sen. Ralph M. Yarborough of Texas, titled, "Politics, Citizenship Education and Liberty."

When speaking of the estrangement of American youth from our society, Senator Yarborough said, "If the young workers of tomorrow do not consider political action any more meaningful and useful than do the youth of today, it won't matter how much leisure they have. . . . If we want to combat their confusion, boredom and apathy, and make sure that our society will have active, purposeful and self-respecting citizens eager to deal with the myriad of problems we face and still face, what we need is to declare a war on poverty of the mind."

Specifically, Senator Yarborough proposed that one of the most valuable things we can teach the young worker is a concern for what happens in his community, his state, his nation, and a knowledge of what *he* can do.

The paper by F. W. Whittemore, chairman, Department of Social Studies, Teachers' College, Columbia University, proposed that the young worker is in as much need of a liberal education as a college-bound youth.

"The importance of vocational education is obvious enough. . . . Yet, this is but one leg in the triangulation necessary to the balanced whole. We must, in addition, provide the citizen worker with both the rational bases for understanding the world around him and, as a third and unifying leg, a clear perception of the meaning and significance of American liberties. Our attention at this conference is focused on the third leg, but unfortunately, we know very little about how to proceed on this line. I am certain of one thing, however: the citizenship education of which we speak cannot be carried out in isolation, as a separate subject."

Whittemore added, "The capstone of a sound social studies program for the young worker is experience in the real world, experience that introduces the student as a rational free man to the day-to-day business of running his free society."

Walter Arnold, United States Office of Education, pointed out that high school students enrolled in vocational programs must complete the same requirements in social studies as any other students. Also, he said, vocational students have a unique opportunity to obtain practical experience in the responsibilities of citizenship and the meaning and importance of civil liberties. The close relationship that exists between the vocational instructor and his students and the value of the cooperative programs and various youth organizations in vocational education were used to illustrate these benefits.

Harry Fleischman, director, National Labor Service, American Jewish Committee, presented a paper on union education and civil liberties.

Speaking of the disparity between official policy and local practice, Fleischman stated, "The right to dissent, to hold unpopular views, to try to convince others and change existing practices by peaceful and lawful means is the very cornerstone of American liberty. . . . Yet, while every AFL-CIO convention has unanimously passed strong resolutions in defense of civil liberties, there is a wide gap between the positions voted at conventions and the views of local union leaders. Rank and file unionists score even lower in concern for civil liberties."

Psychological issues relating to educating for American liberties was the theme of a presentation by Christian Bay of the Political Science Department, Stanford University.

Striking out at the apparent complacency of spokesmen from corporations, unions and schools at the conference, Bay asserted that our social order is in need of improvement. "I believe *things* are in the saddle, not men; things like corporations and laws suitable to their needs, not the needs of men. If our schools are bad, and I think they are, it is because our society up to now has required this kind of school."

Conference discussion was reported to have centered around three questions: "What's wrong with what's being done now to teach civil liberties, especially to young workers or to groups alienated from society? What's being done that seems effective? How can the Center help to improve the educational situation?

Participants raised the basic question of whether commitment to American liberties and democratic citizenship *can* be taught in a non or undemocratic environment. The consensus was that authoritarianism in schools as they operate now should be drastically reduced.

"Rigid state certification requirements" were given by conference participants to be one barrier to getting good teachers, especially as schools try to develop ways to meet the needs of disadvantaged children. There was also concern that the best teachers seldom go where they are needed the most—the worst schools.

Unskilled Union Members

1:9 "A Curriculum Development Study of the Effectiveness of Upgrading the Technical Skills of Educationally Disadvantaged Union Members" by Joseph S. Kopas. Negro American Labor Council Region IV, Cleveland, Ohio. 1966.

"In the past, on-the-job training conducted by industry plus the experience gained from performing the job provided the necessary skilled manpower needed in industry. The higher level skilled jobs were filled by the more experienced and qualified senior employees. . . . Technological progress in industry has changed all this by adding new and *more difficult to learn* skills. Furthermore, it has undermined and is continuing to undermine the current skills of employees.

"Throughout our nation key skill jobs in industry go begging or are poorly manned by senior employees not qualified to meet the changing skill requirements of their jobs, thus losing the opportunity to advance, and clogging up the job progression system. . . . This unclogging can be done by a researched and updated job skill retraining program, which is professionally comparable in quality and effectiveness to the vocational training program available for in-school youth."

This series of introductory statements calls attention to some of the problems confronting educationally disadvantaged workers. Also, they provide the basis for developing a curriculum module in electrical maintenance, and for testing the practicality and effectiveness of utilizing an electronic tutor to provide employees with the additional individualized instruction they need to insure mastery of technical job knowledge.

The curriculum development section of the project was subcontracted to the Human Engineering Institute, Inc., a nonprofit institution.

Two industries, a steel company and a foundry, cooperated in the step-wise job skill training program. Employees performing electrical maintenance work constituted the training population. Forty trainees were divided into two groups of 20. One of these had available the use of an electronic tutor; the other studied the material in the conventional manner. Measurements were made prior to, during and following the completion of the six-month training program.

Comparison of data revealed that employees who received electronic instruction learned more in less time. "The key element in this new program of updating and upgrading technical job skills is the unique 10-hour job instruction curriculum module. This concept combines the advantage of group and individualized instruction and utilizes the classroom, the home and the job in a functionally organized training unit."

Included in this report are a four-year sequence of outlines for electrical maintenance trainees, and a list of 25 "Didactor" films and "Vu-Graph Cells" which have been developed for the first year's work. This material should have value for anyone interested in curriculum development, especially in the field of electricity and maintenance.

TOPIC FOUR: Sociological Studies

Social Influences on Goals

1:10 "A Study of the Influence of the Father's Job and Social Status on the Occupational and Social Goals of Youth" by Robert E. Grinder. University of Wisconsin, Madison, Wis. 1967. 148 pages.

The research strategy of this project was divided into three parts. Phase I included student interviews and a search of literature pertaining to the youth culture, father identification, and characteristics of potential school dropouts.

Phase II focused on the development of a rationale for assessing adolescent boys' youth-culture interests and father orientation, the construction of a Social Interests Inventory, and five successive pilot-tests and revisions of the inventory.

The third phase of the project comprised the administration of the revised Social Interests Inventory to 2,220 eleventh and twelfth grade boys in 7 high schools throughout Wisconsin, administration of an activity and

peer nominations inventory, and acquisition of background data related to academic performance and family status from the school records.

The first stage of the project was centered on identifying youth-culture functions and father-son interaction. A comprehensive list of the rewards and incentives associated with various activities was compiled from descriptive literature and subsequently supplemented with information obtained from interviews with 18 high school boys.

The combined literature review and interview material identified three main groups, which were chosen to represent the incentive categories of the Social Interests Inventory. These were status seeking, independence assertion and sex gratification.

The initial phase of the investigation also revealed that adolescents who seek youth-culture rewards participate in several important reference groups. For the sake of the study these were organized into four categories to serve as the main sociological variables of the Social Interests Inventory. These four were called: *few friends, clique-crowd, dating,* and *solitariness.*

The findings of the investigation support the theory that persons identify with models whose resources they envy, but not necessarily in every way.

"The psychoanalytical interpretation of socialization, which regards adolescent independence to be a reaction-formation against childhood dependency, would predict that adolescent boys who are relatively alienated in one respect would likewise be alienated in all other respects. The data, however, do not support such a formulation. For example, low regard for the father's job seems to sustain youth-culture activities, but father encouragement also is associated with youth-culture activities, especially in respect to heterosexual functions. . . . The data suggest, therefore, that adolescents turn to the father model only for certain resources and incentives."

Another important finding of the study suggests that status-seeking and independence-assertion are among the most important variables that differentiate between potential dropouts and college-bound boys. Also, success in school is strongly correlated with paternal encouragement, participation in extracurricular activities, and high visibility among peers.

"Adolescents are frequently reported to leave high school because of low intelligence, lack of interest in learning, personality disorders, low motivation, limited ambition, etc. Each of these reasons, however, is a product of long-term experience, and during adolescence not all individuals enjoy the good fortune of having facilitative parental support."

Among the strategies suggested for schools are the reorganization of extracurricular activities in order that they include small groupings of boys that populate every high school. "The small few-friends groups must be diluted by more committed youth."

Speaking of the need for finding effective work-role models for potential dropouts, the report states that educational services for potential dropouts are not likely to have lasting impact unless boys seek to emulate a model and become willing to work toward his achievement.

There are lessons for educators in this investigation. First, it becomes increasingly clear that the disadvantaged student is in special need of having persons in school, students and faculty alike, with whom he can relate. There are implications here for the guidance process. Certainly, the traditional program whereby one counselor is shared among hundreds of students cannot satisfy the special problems of potential dropouts.

Also, greater emphasis must be given extracurricular activities designed to serve the interests of the dropout prone sector of the school population. For vocational educators, the benefits of career-related youth organizations, such as FFA, DECA, VICA, and Future Homemakers of America, should not be neglected.

British Isles Vs. United States

1:11 "A COMPARISON OF TECHNIQUES FOR THE SOLUTION OF SIMILAR EDUCATIONAL-VOCATIONAL PROBLEMS OF DISADVANTAGED YOUTH IN GREAT BRITAIN AND THE UNITED STATES" BY ROBERT L. GIBSON. INDIANA UNIVERSITY, BLOOMINGTON, IND. 151 PAGES.

The purpose of this investigation was to test the hypotheses that: (a) the disadvantaged English-speaking cultures of the British Isles and the United States will have similar identifiable youth educational-vocational problems, and (b) that solutions found to these problems in one country or culture may be applicable to any similarly disadvantaged culture. As a pilot study, a further objective was to test the feasibility of and possible procedures for a larger scale international study of common educational problems, especially of disadvantaged youth.

The communities comprising the sample of the study were selected in accordance with a basic criterion: that the community, or a significant segment of its population, was located in an area identified as economically or culturally disadvantaged. Schools representing urban, rural and semi-rural disadvantaged populations were selected. As a further control, communities in the British Isles and the United States were matched on the basis of such characteristics as population, industry, government, relationships to other communities, and geography.

These paired communities were: Belfast, Northern Ireland, and Milwaukee, Wis.; Newry, Northern Ireland, and Paducah, Ky.; Castlewellen, Northern Ireland, and Twining, Mich.; Aylebury, England, and Detroit, Mich.; Cupar, Scotland, and Oak Park and River Forest, Ill.; Kirkaldy, Scotland, and Coos Bay, Ore.; Glenrothos, Scotland, and Logan, W. Va.; Cardiff, South Wales, and Indianapolis, Ind.

A problems checklist through which educational-vocational problems and their relative degree of importance could be determined was submitted to administrators, pupil personnel workers and randomly selected faculty of the schools under study. Reliability for this instrument was previously obtained through test and retest procedure using alternate forms. Validity was further established through follow-up interviews.

The number one priority problem identified in both the British Isles and the United States was "pupils failing to work up to or achieve new capacity." Other problems of major concern to British educators were lack of interest and motivation in the academic program, pupil home environment, and lack of appropriate job opportunities for pupils upon graduation. United States educators, on the other hand, were more concerned with pupils failing to acquire basic reading, writing and reasoning skills, pupils engaged in undesirable or delinquent behavior out of school, and dropping out of school before graduation.

The small sampling of pupils interviewed indicated that pupils in the United States were most concerned, in order of importance, with: (a) lack of appropriate curricular offerings; (b) lack of post-high school vocational and technical education opportunities, and (c) lack of job opportunities after graduation. British pupils were most concerned with: (a) lack of job opportunities; (b) lack of post-high school vocational and technical opportunities, and (c) inadequate programs of pupil guidance.

Among other concluding remarks of this comparative study are statements that:

—There are identifiable educational problems that are the common concern of educators in both the British Isles and the United States.

—Solutions found to common educational-vocational problems of secondary school youth, especially the disadvantaged, in one country or culture may be applicable to other disadvantaged cultures.

—The continued exchange of viewpoints and techniques for dealing with common educational problems between English-speaking educators offers future promise for reducing the educational wastage resulting from such problems.

Equal Employment Opportunities

1:12 "EQUAL EMPLOYMENT OPPORTUNITIES: SELECTED PAPERS AND ANNOTATED BIBLIOGRAPHIES" BY THE INSTITUTE OF LABOR AND INDUSTRIAL RELATIONS. UNIVERSITY OF MICHIGAN-WAYNE STATE UNIVERSITY, DETROIT, MICH. 1966. 153 PAGES.

This report contains five projects, each dealing with equal employment opportunities. These five are:

—"An Assessment of the Suitability of the Faceted Structure of the Western Reserve University Thesaurus as a Framework for Preparation of a Thesaurus of Economic Opportunity Terms"—24 pages.

—"Problems, Research and Recommendations in the Employment Testing of Minority Applicants"—63 pages.

—"The Negro and Organized Labor: A Selected Annotated Bibliography"—19 pages.

—"Testing of Minority Group Applicants: A Selected Annotated Bibliography"—10 pages.

—"The Negro and Employment: A Selected Annotated Bibliography"—37 pages.

The first project, the Western Reserve University Education Thesaurus, is comprised of 17 "facets" or clusters of conceptually related terms. Using this faceted structure as a guide, 1,779 terms relating to economic opportunity were extracted from textual sources and sorted into appropriate facets, sub-facets and groups. The thesaurus is included in the report.

Conclusions drawn from the thesaurus development project are that the faceted organization of economic opportunity terms is a satisfactory and efficient method. It is also reported that many of the problems of developing an indexing language and system for the literature of economic opportunity are analogous to those of the literature of education.

The study dealing with employment testing of minority applicants reviews the growing reliance on standardized tests for screening job applicants. Here it is pointed out that although the use of tests may reduce the incidence of overt discrimination, they also tend to "inadvertently discriminate" against the person with socio-economic handicaps.

Also questioned is the current level of competence in the selection and administration of tests. "The first step in initiating a testing program is selection of the tests. Experts agree that this is best done by analyzing the specific job skills and validating tests for each specific requirement of each job. In practice, however, most tests are installed because 'it seemed to be a good operating practice'—only 30 percent of the tests in one survey were installed by professionals after job analysis, or installed to meet a specific identified need."

A section of the employment testing study that is of particular interest is that which outlines the types of problems minority applicants have with tests. These problems are grouped under the following headings: those stemming from the applicant's background; stemming from the testing situation; relatively low predictive value of test results, and problems with specific types of tests.

The study suggests a number of solutions to these problems:

—Elimination of culture biases in tests

—Improvement of testing situation

—Improvement of test validity

—Training minority group members

—Supplementing test results with other pertinent data.

The final three sections of this report are annotated bibliographies. In each case the annotations, which on the average are between 50 and 100 words, should help the reader know the nature and scope of the document. The titles listed are a mixed bag of popular articles, scholarly treatises and research reports. As such, they may have limited value for the scholar, serving mainly as sources of general information.

Equal Employment Practices

1:13 "THE NEGRO AND EQUAL EMPLOYMENT OPPORTUNITIES: A REVIEW OF MANAGEMENT EXPERIENCES IN TWENTY COMPANIES" BY LOUIS A. FERMAN. UNIVERSITY OF MICHIGAN—WAYNE STATE UNIVERSITY. U.S. DEPARTMENT OF LABOR 1966. 202 PAGES.

This investigation was conducted for OMPER, U.S. Department of Labor, by the University of Michigan. Twenty companies were selected to study the application of equal employment practices in company settings and to assess the impact of these practices on minority group employment. The 20 studies cover a broad spectrum of industrial classifications: heavy and light manufacturing; public utilities; service; retail and wholesale trade; transportation and distribution. All of the companies had publicly pledged themselves to a program of action in equal employment opportunity.

Before the study was undertaken, it was decided that the primary value of the inquiry was to solicit a *wide range of information on attitudes, behavior and experiences from these individuals*

who were most directly involved in the work integration process. A series of five instruments were designed to achieve this purpose:

—A five-part interview was conducted using 67 management executives and 27 corporate headquarters officials. This checklist of close-ended questions was designed to solicit views from corporate officials on the goals of an EEO program within their company.

—An interview, designed to solicit attitudes and expressions of behavior, was given to 40 local plant officials. This 20-item schedule with checklist and open questions sought information on such matters as: history of Negro employment in the plant, real and anticipated problems, sources of Negro recruitment, and union structure.

—An instrument combining open-ended and closed questions was submitted to 205 white workers in non-supervisory positions and to some supervisory personnel. The wide range of questions covered such topics as: job mobility and training attitudes, knowledge of EEO policy, interpersonal relations at work, and images of the Negro worker.

—The instrument paralleled the previous one, but was given to 215 Negro workers.

—The fifth instrument used was designed to solicit information on attitudes and experiences of local union labor leaders on integrating the Negro into the company and the union.

The findings of this investigation are reported in six statements:

1. Progress in Equal Opportunities: All of the companies reported progress, but company executives felt that shortages in adequately trained Negro workers would hinder any dramatic change. In most companies relatively little had been accomplished in opening jobs to unskilled Negro workers.

2. Business Values and Equal Employment Opportunities: There is clear evidence of a set of values in the business community that has implications for the more effective utilization of Negro workers: *efficiency of operation* and *priority of work standards over equal employment goals; resistance to modifying employment standards; resistance to increasing job mobility for Negroes by any special quotas for Negro job advancement; and the resistance to any special employment programs that are not integrally a part of the present employment structure of the company.*

3. Satisfaction with Negro Job Performance: Negro technicians and professionals were highly regarded and Negroes in office jobs were considered good workers but unwilling to take responsibility. The job capabilities of untrained Negro workers in entry level jobs were not regarded highly.

4. Union Values and Equal Employment Opportunities: With the exception of two large industrial unions in northern cities with large Negro memberships, Negroes faced a number of problems both in industrial and craft unions. To a very large extent, these problems reflected union unwillingness to compromise with long-established sets of institutional values—seniority and apprenticeship. The study also suggests that union leaders give relatively little opposition to equal employment practices unless these come into direct opposition to the job rights of white workers.

5. The White Worker's View of the Negro: Few white workers were prone to admit that Negroes had any special job difficulties because of skin color. There was a general lack of awareness of the civil rights issue and a certain puzzlement that Negroes should be dissatisfied. The majority of white workers felt that "special treatment of Negroes was not right."

6. The Negro Worker's View of Equal Employment Opportunities: In contrast to the whites, the Negro workers felt that there was considerable job discrimination against Negroes in hiring, training and promotions. One of the major complaints is that discrimination is subtle and rarely anything that one can put a finger on. Many of the Negroes felt that they received little help from white workers in informal, on-the-job training or in learning job information that would be valuable for promotion. This latter complaint was particularly frequent among lower-skilled blue collar workers who had received few promotions.

TOPIC FIVE: Guidance and Training Centers

Centers for Dropouts

1:14 "Occupational Training Centers for 16-18 Year-Old Youth, A Demonstration Program for Potential or Actual Dropouts" by Leon L. Kaplan. 1967. 105 pages.

The staff of the Unified School District was encouraged to develop an effective program for potential or actual dropouts through the establishment of regional occupational centers. A preliminary study, conducted by the school district's staff, served as a basis for the federally funded investigation that followed.

The task force assigned to conduct the research consisted of a high school principal, a head counselor and an industrial arts teacher. The task force engaged in the following activities in carrying out the investigation:

1. Review of current literature and preparation of a bibliography.

2. Interviews and conferences with representatives from industry, schools, labor, community organizations, and government.

3. Visits to airport facilities, manufacturing plants, government offices, selected schools, skill centers, and community action centers.

4. Visits to San Diego, Oakland, Denver, Detroit and New York to observe programs and confer with school and government representatives.

5. Organization of and consultation with advisory committees.

6. Organization of a school district committee to consider revisions of present legislation and to prepare new legislation relative to continuation legislation.

7. Interviews with dropout pupils, continuation class pupils and former dropouts currently enrolled in adult schools.

On the basis of the investigation, two demonstration Occupational Training Centers were proposed for 16- and 17 year-old pupils who are subject to compulsory continuation education. The behavioral objectives established for these centers are:

—To develop in pupils positive attitudes toward themselves, school, work, and community.

—To improve pupils' basic skills and knowledge in academic subjects.

—To improve pupils' occupational skills and knowledge.

—To identify pupils' health needs and make appropriate referrals.

To achieve the goals, the Centers were given a program of work which included the establishment of "a work-study schedule in which academic subjects will play a supportive rather than a dominant role; provide job-related experiences designed to assist the pupil in the transition from school to work; provide supplementary counseling and health services; provide an individualized educational program leading to a high school diploma, and continue to upgrade district efforts by incorporating an evaluation-revision-dissemination procedure designed to accelerate needed changes."

Job Counseling Center

1:15 "THE JOB COUNSELING CENTER: AN EXPERIMENTAL AND DEMONSTRATION MANPOWER PROGRAM FOR DISADVANTAGED YOUTHS" BY RICHARD GREENFIELD, BOARD OF EDUCATION, NEW YORK, N. Y. (U. S. DEPARTMENT OF LABOR) 1966. 141 PAGES.

The Job Counseling Center of New York City was operated as a 20-month experimental and demonstration program. It was funded by the U.S. Department of Labor to test the thesis that an urban school system could provide the services of a manpower program to a population which was out of school, unemployed and disadvantaged.

The design of the program was simple. Licensed school personnel would operate centers located in four vocational high schools during evening hours. Centers would provide counseling, remedial education and short-term vocational training. A full-time placement component would develop jobs for the clients as quickly as possible, since employment was the most prevalent need for this population.

"The major program thrust was to encourage youth, by our post-placement activities, to build on the solid base of continuous employment through involvement in a variety of activities leading to his upgrading."

Serious problems associated with initiating the program were reported. It was found, for example, that the job counseling center, having its affiliation with the Board of Education, was not community based. "It had to achieve community acceptance on its own. If it were not for the freedom and protection of its experimental and demonstration status, the program may not have survived. . . . Because of the E and D label, no one was ever quite sure what was expected. The happy result of the ambiguity was that no existing institution felt threatened by the program's existence."

The first step in locating clients was to open centers in areas designated as poverty stricken, where they would be accessible to large numbers of disadvantaged youths. Lists of dropouts supplied by schools were used as sources for recruitment. Mass media appeals were generally avoided because of fear that a sudden rush of new counselees could not be served effectively.

Each of the four counseling centers was a self-contained unit. A person seeking employment, remediation, counseling, or some shop experience could be served on the spot because of the facilities available in the vocational high schools. A disadvantage of using these quarters was also cited. They were available only during evening hours. "This simple fact can be seen in itself as a selection process, whereby the most alienated youths just do not respond to recruitment appeals."

One of the main variables which affected the counseling program was reported to be the interpretations of counselors of their own roles and functions. Questions like "How long do we hold a client?" and "How deep should we go?" were part of the staff's introspection and self-evaluation.

The goals of the counseling were found to vary from one counselor to another, and from month to month. "When jobs were scarce, and the counselors felt they had very little to offer their clients, the counseling was affected. Conversely, when jobs were plentiful, or a newly founded program was opened to our youths, quick movement of the clients out into the job world or program often became the only identifiable activity of the counselors."

The remedial reading program had limited success. The JCC had the services of remedial experts from the school system who worked in the evening centers. "Their experience indicated that remediation is a long, arduous process, and success is determined primarily by the youth's motivation and his ability to overcome the emotional factors which inhibit learning. . . . The correction of serious reading disabilities requires the youth to invest probably a year of his time. Most of our target population would not make this investment."

As the job counseling program progressed, the counselors increasingly demanded a range of services for their clients that the program could not possibly supply itself. "Needs for training, for education, for options to dead-end jobs became more and more important as the staff gained sophistication in its self-evaluation."

The services of agencies outside of the Center were used to augment the limited resources of the program. These included evening high schools, trade extension courses, adult education classes and higher education advisory services, all conducted by the Board of Education. Also involved were the New York State Employment Service, various MDTA operations, and, during the latter part of the program, a number of newly developed community action agencies.

Job development and placement activities were looked upon as a major part of the program. The report states that job developers were subjected to considerable pressure to provide jobs quickly, as the counseling function would be meaningless without placement. "To the youths, the promise of a job right away was what drew them to the centers. The counselors knew they could not hold their clients very long without meeting their needs, so they depended very heavily on the placement unit to move quickly."

The summary statement of the job counseling report is especially meaningful to public school personnel as it supports the idea that a school system can indeed provide a meaningful program for disadvantaged, unemployed, out of school youth. "Undoubtedly, any large school system could staff a program with qualified people. . . . Similarly, no community should be deprived of the fullest use of the facilities of its school system. The physical plants and the vocational equipment represent an investment of the community, and it is wasteful if they are available only six hours a day while school is in session."

"PLAIN TALK"

AMERICA'S RISE to world prominence has often been attributed to a unique combination of fortuitous conditions and circumstances, such as climate, soil, seaports, and an abundance of mineral wealth. As time goes on, however, it becomes increasingly clear that the greatest resource of this nation is its people—all of them.

Even as we have tolerated a profligate destruction of our natural wealth and beauty, so have we also carelessly permitted a devastating waste of human resources, allowing a substantial proportion of our population to remain in a persistent and self-perpetuating cycle of ignorance, apathy, unemployment, and deprivation. Whether this waste in human potential is measured in social, economic or ethical terms, this situation must be looked upon as a major disaster and a mortal danger.

For the vocational or practical arts teacher who thinks of the conditions in urban slum or rural backwater of poverty as somebody else's responsibility, it can only be said that such a person is out of touch with reality. True enough, the teacher can only deal with a portion of the varied, complex problems associated with disadvantaged youth, but his role in achieving an ultimate solution is pivotal.

Through vocational education lies the key to social change. The potential ward of society—the person who *Time* magazine (May 17, 1968) says can cost taxpayers $140,000 in his lifetime—can best be served by giving him a foothold on the employment ladder, equipped with the skills and knowledge which will help him become a self-respecting and productive citizen.

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RESEARCH VISIBILITY

SYNTHESIS / APPLICATION / DISSEMINATION

*"Research Visibility" is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The "Research Visibility" report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

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Vocational Education for Girls and Women

Educators have generally neglected to recognize the special and unique life pattern of women in modern society. They characteristically have periods of interrupted and delayed payroll employment combined with varying home and family responsibilities. Certainly, the typical high school guidance program, with its concentration on grades and credits, is far from relevant for the young woman who, more often than not, will be employed, or seek employment, immediately after leaving school, and who will have a husband and family shortly thereafter.

The curriculum, too, is in most cases a "one-shot" proposition; an either-or alternative is thrust upon the girl in junior high school. She must either select an academic curriculum, or one with a specific vocational objective. And the continuing vocational education requirements of female adults are scarcely considered.

Negligible Attention

The Panel of Consultants Report of 1962, *Education For a Changing World of Work*, is rightly hailed as a historic document. But the amount of penetrating analysis it gave to the special vocational needs of girls and women has been negligible, as was the legislation that followed.

Other well-known treatises on education have also missed an opportunity to consider the fact that a growing proportion of our female population will work, and that a very large number now seeking employment are poorly equipped to meet the complex demands of home, work and society. Grant Venn's book on postsecondary

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Dr. Gordon F. Law is editor of "Research Visibility." The organization for this department of the JOURNAL, the pattern for reporting and the writing represent his work.

vocational education, *Man, Education and Work,* which is mainly preoccupied with the homogenization of educational efforts, has neglected to seriously consider the vocational educational needs of girls and women. Yet another important document, *Imperatives in Education,* prepared by the American Association of School Administrators, has failed to identify problems relating to the female sector.

The best source of information concerning the status of women in the work force is the Women's Bureau of the U.S. Department of Labor. One of its publications, the reprint of a section of the *1967 Manpower Report* called "Utilization of Women Workers," says that in 1966 women represented more than *one-third* of the country's work force, and nearly *two-fifths* of all women were 14 years of age and older.

"Women's disadvantaged position in the job market emphasizes the need for increased efforts to broaden their training and employment opportunities. . . . Stereotypes about 'women's jobs' and 'men's jobs,' deficiencies in the vocational guidance and counseling available to most girls, emphasis on traditional occupational choices, and limitations in the types of education and training courses offered women have all contributed to women's job market limitations. Too many women and girls accept the view that only a narrow range of job alternatives is open to them, and they have not been encouraged to obtain the types of education and training which would prepare them for many new and expanding job opportunities for which they could become qualified."

Speaking further on the need for relevant guidance and education, "Utilization of Women Workers" states that the importance of early recognition of greatly changed life patterns of women was emphasized at two pilot conferences on counseling co-sponsored by the Women's Bureau of the Department of Labor and the U.S. Office of Education.

Four Recommendations Made

The following specific recommendations are made in this report:

—Young girls need to receive more realistic information from counselors, educators and parents to help them anticipate better the multiple roles they will have in life, and especially to assure adequate preparation for their probable work role. Improved guiddance materials and further conferences are needed, along with counselor retraining, to increase understanding of the new developments in women's working lives.

—Educators, training officers and government officials need to review their policies and practices to see that women have equal access with men to all types of education and training facilities.

—Employers—both public and private—need to make more extensive efforts to implement equal employment opportunities for women, in hiring and promotions to responsible and well-paying positions.

—In many localities where such assistance is lacking, specially designated counselors in public employment offices and CAP centers could help meet the special needs of mature women seeking to re-enter the work force—through counseling referral to training, placement, and other services. Increased provision of day-care facilities and housekeeping assistance to working mothers, and the possibility of more favorable tax arrangements to offset child-care expenses, also deserve serious consideration.

TOPIC ONE: New Directions in Business Education

Training Scientific Secretaries

2:1 "Scientific Secretary Training Program Development" by John H. Swenson. Colorado University. 1968. 74 pages.

The impact of rapidly expanding scientific knowledge and its technical application is given as a major challenge to education. Secretarial education is no exception in the general trend toward greater specialty and complexity, as illustrated by the prior development of acceptable training programs to prepare persons for jobs as "medical" and "legal" secretaries.

The problem of this project was to determine whether or not there are special skills and knowledge required of the secretary working in a scientific setting and, if so, to determine whether or not an instructional program specifically designed to meet the specialized educational needs of scientific secretaries would, in fact, provide these skills and knowledge to persons with appropriate ability.

The following four specific objectives were established:

1. To determine the educational needs of those persons working as scientific secretaries in relation to the requirements of their employers.
2. To develop an instructional program to meet the educational needs of scientific secretaries.
3. To conduct a pilot training program to test the adequacy of the instructional program, including a follow-up evaluation of the trainees' on-the-job performance.
4. To determine the criteria and evaluative instruments for predicting the success of persons to be trained for employment as scientific secretaries.

Among the methods employed in determining the educational needs of scientific secretaries were the review of related literature, a survey of existing training programs, and a series of interviews and questionnaires administered to a selected group of science-related organizations.

The curriculum development project for the pilot training program included the following functions: Formulation of objectives; determination of course content; preparation of instructional materials, methods and techniques, and provision for evaluation and modification as the training program progressed.

For the pilot training program, 46 persons in the Denver-Boulder area were given 320 clock hours of in-class instruction and skills practice. Pre-test, post-test procedures, and evaluations by teachers and trainees were used to help determine the program's effectiveness. Finally, work supervisors were asked to rate the on-the-job performance of trainees.

Three main conclusions were drawn from the project:

—The special educational needs of scientific secretaries can be identified.

—A training program based on these special needs can be developed and conducted, and it does result in improved knowledge, skills and on-the-job performance on the part of

adult women trainees of above-average intelligence.

—It appears possible to predict accurately the degree of success which adult women will achieve in such a specialized training program.

Among the more significant implications for modification of existing educational and business practices cited were:

1. There is an increasing need for programs to train scientific secretaries, and it is not being met by established educational institutions.

2. An individual-study approach to providing in-service training in science and mathematics for currently employed scientific secretaries warrants consideration.

3. Both private enterprise and governmental personnel systems should develop job classifications for scientific secretary positions.

4. Eventually, top-ranked scientific secretaries may require up to 4 years of post-secondary school education.

Specific recommendations for improvement in the selection and grouping of trainees, scheduling, integration of instruction, emphases in mathematics, and the refinement and validation of predictive instruments were formulated.

Acquisition of Typing Skill

2:2 "EFFECTS OF INTERVAL PACING ON THE ACQUISITION OF TYPEWRITING SKILL" BY LEONARD J. WEST. NEW YORK CITY UNIVERSITY, N.Y. OFFICE OF RESEARCH AND EVALUATION. 1968. 38 PAGES.

This investigation was concerned with the acquisition of speed and accuracy in copying ordinary prose materials at the typewriter. Specifically, the objective was to assess the effects on the straight copy proficiency of persons at various levels of typing skill of self-paced versus externally paced practice.

Pacing, the report states, refers to governing the response rate — controlling the number of responses made within a given time or the time interval between responses. A self-paced task is one in which the operator sets his own response rate. External pacing refers to the imposition from without of some mode of guiding the operator to respond at a specified rate.

The experimental design involved 8 instructors and 16 typing classes in 4 New York City high schools. Each instructor taught one SP (self-paced) class and one EP (externally-paced) class, both classes at the same stage of training.

Classes at the three lower stages of training were drawn from general high schools that included a commercial program. Fifth semester students were from a vocational high school. It was reported that problems were encountered as a result of excessive student absences and the failure of many students to obey the rules of practice relating to the experiment.

Practice Schedule

The practice schedule in fall semester classes provided for a maximum of 65 five-minute practice timings—a total of 325 minutes—under either SP or EP conditions. The timings were distributed 4 a day over 20 consecutive school days.

The pacing practice materials consisted of 5 minutes' worth of ordinary prose paragraphs at each even-numbered speed from 16 through 76 words per minute. Efforts were made to control practice copy for difficulty via syllabic intensity.

Students were initially assigned either to speed or to accuracy practice on the basis of their pretest performance. Those who made no more than two errors per minute on the pretest began with speed practice on a paragraph one or two WPM above pretest gross speeds. Those who made more than two errors per minute were assigned to accuracy practice on a paragraph one or two WPM's below their pretest gross speeds.

All teachers in EP classes used stop watches. During the first few weeks, teachers announced the passage of each quarter minute. Toward the end of the program, the time interval was increased to one-half, and then each full minute.

Results Presented

In SP classes, on the other hand, there was no mediating announcement of time intervals, and copy was not marked internally. For SP students, all of the practice timings were for five minutes.

Results of the investigation are presented for criterion scores, analyses of adjusted post test scores, practice gains, student reactions, and reliability of two scoring methods.

Post test speed and error scores were subjected to covarience analysis (regressed on pretest scores), and no significant differences were found. "Self pacing and externally paced practice had equal effects at all levels of skill." However, the report indicated that possible differential effects of self-paced and externally-paced practice were swamped by disadvantageous practice conditions and rules applied to both modes of pacing.

"It is apparent that the two pacing modes are insensitive to distribution effects, and it is recommended that the pacing modes be investigated under conditions of greater distribution of practice, using practice gains that are less demanding, wtih provision for larger amounts of accuracy practice."

Clusters of Office Work Tasks

2:3 "CLUSTERS OF TASKS ASSOCIATED WITH PERFORMANCE OF MAJOR TYPES OF OFFICE WORK" BY EDWARD A. PERKINS, JR. WASHINGTON STATE UNIVERSITY. 1968. 210 PAGES.

The purpose of this Washington State University study was to identify clusters of tasks performed by a sample of office employees working in various sizes of offices in 12 Standard Industrial Classifications.

A proportional, stratified sample of 295 firms in the private sector and 28 government agencies was selected. In each Standard Industrial Classification (SIC) the sample was structured according to five office-size levels. The 12 SIC categories were: Agriculture; Mining; Construction; Manufacturing; Transportation; Communication and Utilities; Wholesale Trade; Retail Trade; Finance, Insurance and Real Estate; Services; Government; and Education.

A total of 767 questionnaires comprised of 599 office tasks, which had been validated by interviews with 286 office workers and supervisors, was distributed to firms and agencies constituting the sample. Total returns were 80.3 percent by private enterprise and 96.8 percent by government. Respondents were classified in six general occupational categories: supervision, secretarial-stenographic, clerical, bookkeeping-accounting, business machine operation, and data processing.

Differences in the percentage of employees within each SIC, and percentages in various size offices were computed. Analysis of data thus obtained supported two hypotheses:

1. There are significant differences in tasks performed by office employees in the various Industrial Classifications.

2. There are significant differences in tasks performed by office employees in small and large offices.

The report states that the 599 office tasks have been clustered within 13 major categories:

Typewriting	Financial & Record Keeping
Office Machines & Equipment	Securing Data
Dictation & Transcribing	Mathematics
Mailing	Clerical
Filing	Meeting & Working With People
Telephoning & Communicating	Miscellaneous
	Editorial

"Since these data represent the tasks performed by a typical office worker, the composite clusters can be used as a partial basis for a re-evaluation of the high school business curriculum, which is primarily concerned with the total realm of office work and not solely with the fitting of a graduate into a specific office job."

Five recommendations of the study are given . . . "To provide a more adequate base for providing up-to-date office education instruction."

1. Clusters of knowledges, skills and capabilities associated with performance of major tasks be identified. This research should focus on input data of at least two varieties: What the office worker sees his job as being, and what the internal resources and environmental conditions of the job are.

2. An in-depth study of office work in "Leading-Edge" firms be made to ascertain emerging charges in office structures and functions.

3. An analysis of the office education curriculum in today's schools be made and a comparison made between the research findings and current curriculum practices.

4. An instructional objective—derived model for office education be developed and that general and specific statements of instructional objectives be derived from many different sources of input data, including items 1-3 above.

5. Self-paced learning packages be developed and field tested and that design of these instructional systems be based on the objectives identified in item 4 above.

The Job Analysis Approach to the organization of instructional clusters,

which is exemplified in this investigation, should serve as a model for curriculum builders in office education. The information that there are significant differences in work patterns, depending on type of business organization and size of office, gives credence to the concept that each local program of office education should reflect some of the employment conditions of the community. Also, the five specific recommendations of the study seem to be especially relevant.

Pre-Service Education

2:4 "PRE-SERVICE EDUCATION OF OFFICE EDUCATIONS TEACHERS" BY DOLORES KILCHENSTEIN. TEXAS TECHNOLOGICAL COLLEGE. 1967. 78 PAGES.

The primary purpose of the four-week institute was to educate new office occupations teachers on the acquisition and application of skills and knowledge to enable participants to conduct vocational office education programs in their local schools. "In addition, each participant was expected to disseminate his institute experiences to office occupations teachers in his geographical area."

Criteria for the selection of candidates to the workshop included teaching experience in federally funded office occupations, college grades and credit in business education, office work experience, age, attitudes toward assuming a leadership role, and history of organizational affiliations. Forty participants from 29 states and one possession registered for the institute.

The institute program consisted mainly of 13 seminars, each conducted by a well-known figure in office education. The topics covered and seminar leaders were:

"The Office Occupations Student"—Samuel M. Greer, South Carolina
"The Office Occupations Program"—Bernard Schilt, Buffalo, N. Y.
"The Teacher of Cooperative Programs"—David A. Thompson, Texas
"Office Occupations"—Bruce Blackstone, USOE, Washington, D.C.
"Administration and Supervision of Office Occupations Programs—Everett W. Fuller, Texas
"Facilities, Equipment, Supplies, and Classroom Layouts"—William Seldon, Pennsylvania
"Office Machines Procedures I"—James R. Meehan, New York
"Cooperative, Simulated and Directed Programs"—James H. Wykle, USOE
"Office Machines Procedures II"—Robert J. Ruegg, Illinois
"Research in Office Education"—Harry Huffman, Ohio
"Office Systems and Data Processing"—Maxine King, Texas
"The Office Occupations Teacher"—Fred S. Cook, Michigan

Another phase of the institute was a series of practicums in which participants were divided into three sections of 13 to 14 persons each. Practicum sessions were conducted four days each week, and they were led by Texas Tech business education professors. The purpose of these sessions was to provide for the evaluation and practical application of theory and knowledge about office education. Of fundamental concern was the application of knowledge to each participant's local community.

During the course of the institutes, each participant was assigned five projects. These were scheduled to allow for a presentation and at least one follow-up session. Participants prepared the final copy of their projects to expedite reproduction.

The appendices of this report contain copies of magazine publicity in *The Balance Sheet* and *Business Education World*, sample application, evaluation and completion forms, and lists of program participants and state officials with supervisory responsibility for office occupations.

As the report does not contain transcripts of presentations or details of seminar and practicum proceedings, its reading value is limited.

Wage-Earning Occupations

2:5 "Evaluation Of Secondary School Programs To Prepare Students For Wage Earning in Occupations Related to Home Economics" by Helen Y. Nelson and Gertrude P. Jacoby. New York State College of Home Economics. 1967. 169 pages.

Introducing its report with the statement that home economics educators have had little experience with the incorporation of wage-earning programs in secondary school home economics, the Cornell University study had three main objectives:

1. To evaluate the progress of students enrolled in courses in home economics directed to wage earning.

2. To determine the relationship between extent of student progress toward course objectives and student success in obtaining and holding jobs.

3. To help provide, by means of descriptive data, answers to questions raised by secondary schools and teacher-preparing institutions regarding courses in which home economics is related to wage earning.

Pilot Programs Evaluated

The study dealt with the evaluation of 12 pilot programs in occupational home economics in New York State to train food service workers for entry-level jobs and child care center aides. "One portion of the study was primarily concerned with the evaluation of the pilot programs and with the refinement and development of instruments to implement the evaluation. A second portion treated the 12 classes as one sample of students enrolled in occupational education and investigated questions of general interest to vocational educators."

For several years prior to the present study many schools in New York State had asked the State Bureau of Home Economics Education for information about possible course offerings in occupational education. In a presentation at the National Clinic on Home Economics Education in 1966, Ruth Ellen Ostler of the State Bureau described the selection of the sample.

A list of interested schools was compiled. The schools selected to participate in this pilot program were taken from it. Twelve was the number established as the maximum number of schools to participate, and some criteria were developed to serve as a basis for selection. It was necessary that school districts participating agree to take the following action:

—Implement a course in Food Services Occupational Preparation or Child Care Services Occupational Preparation, the two areas in which curriculum materials are developed to the stage of experimentation.

—Cooperate as necessary in the Evaluation Research Project.

—Establish an advisory committee to guide and advise local program development.

—Select as the teacher of the course a home economics teacher who is interested in the concept of occupational education and has had working experience in the occupational field.

—Select as trainees, students who can (a) benefit from the occupational education program proposed; (b) will have reached legal employment age by the end of the school year, and (c) are interested in and possess ability to prepare for occupations in the service area for which training will be offered.

—Provide facilities necessary to achieve program objectives.

—Arrange for work experience in actual employment situations as an integral part of the program.

Ten Programs Established

Using these measures, eight local school districts and two area occupational education centers were selected to participate in the study. Nine classes were set up in 8 high schools and 3 in the area centers. Of the 12 classes comprising the sample, 7 prepared students for jobs in food service, 3 trained child care center aides, and 2 were "Home Economics 14" classes which provided limited experience in food service.

The report contains detailed descriptions of each of the 12 classes and it also presents a summary of the total population.

Ages in the sample ranged from 14 to 19, with a mean at 16.52 years. Approximately 69 percent were 16 and 17 years old, 17 percent were younger and 14 percent older. One hundred girls and 12 boys completed the course—including 10 ninth-graders, 18 tenth-graders, 37 eleventh-graders, and 47 twelfth-graders.

Student IQs were categorized into four ranges, with 9 percent above 110, 45 percent from 90-109, 34 percent 75-89, and 12 percent below 75.

Student scores in Stanford achievement tests and the High School Reading Test were found to fall well below normal: "When scores of the Stanford achievement were compared with norms for similar students the lowest scores on the numerical competence test were found to fall at the first percentile rank for eight classes. . . . Highest scores on numerical competence were no higher than the eighth percentile rank in one class, the sixteenth percentile rank in three classes, and the eighteenth percentile rank in another class.

Thirty-eight students, or one-third of the total sample, were considered by their counselors to be handicapped by poor physical or emotional health or by cultural background. Students carried considerable responsibility at home, some devoting many hours a week to child care, farmwork and housework.

Development of Instruments

A number of instruments were used to measure progress toward the objectives of the study. Some had been developed in earlier research projects and others were prepared expressly for this investigation. Previously developed instruments included:

—Attitudes toward work scale.

—Becoming Employable scale.

—Descriptive rating scale for measuring competence in a specific skill, that of waiter/waitress.

—Reactions to children of various ages.

Instruments designed expressly to meet the objectives of this study were:

—Three descriptive rating scales of a general nature to complete the series of four applicable to many entry-level jobs: *Becoming Employable*, which is the first; *Management; Safety*, and *Sanitation*.

—Descriptive rating scales, designed for use in conjunction with the four general scales to measure specific skills taught by the courses: Child

care center aide, dietary aide, family meal specialist, cafeteria counterman, short order cook, and cook's helper.

—Descriptive rating scales used as part of the follow-up of students into their jobs: Employer's rating of trainee, and trainee job satisfaction scale.

—Questionnaires and data sheets for collecting student background information from guidance counselors.

—Follow-up communications to both former students and their employers.

—Checklists of facilities desirable for training child center aides and food service workers.

—Forms for collecting pertinent data from teacher records.

Results

"Most students, by the conclusion of the programs, showed acceptable attitudes toward work and minimum employability characteristics and skills." The summary goes on to state that young people were shown to want to work and, indeed, to attach considerable status to being able to hold a job. Students expressed the general opinion, in individual interviews, that any occupational practice, orientation or work experience was helpful in preparing for jobs; but most prized was class experience closely meshed with paid work experience for an outside employer.

"Three-quarters of the students interviewed considered their generally strong background of basic home economics courses to be essential for success in occupational home economics classes."

Homemaker Services Film

2:6 "DEVELOPMENT OF A FILM ON HOMEMAKER SERVICES FOR INSTRUCTION TO THE PUBLIC AND TRAINING PROFESSIONAL AND NONPROFESSIONAL PERSONNEL" BY ALBERTA JACOBY. MENTAL HEALTH FILM BOARD, INC., NEW YORK, N.Y. 1967. 8 PAGES.

Homemaker service is a form of assistance provided by health and welfare agencies when a family or an individual cannot maintain living and household routines during a time of stress or crisis. The agency places a mature, qualified woman in the home. This person, called a *homemaker—home health aide,* works under the supervision of a caseworker, or a public health nurse.

The main objectives of this project were to develop a film for recruitment and training purposes; to carry out a utilization program to communicate information about homemaker services to a wide audience, and to use the film as a training aid.

Four main steps were taken in film making. First, the general focus of the film was determined: "In this case to develop a communications tool which could be used for training, and would therefore show approved practices in providing the services of homemaker-home health aides."

The second step was the determination of specific subject content of the film. This was accomplished by employing the combined resources of consultants, persons experienced in homemaker services and experts in film use and film production.

The actual making of the film, which was titled *Home Fires,* included research on content, script writing, photography, recording of narration, and laboratory work.

The final step in the program involved the film's field testing with various audiences and the writing and testing of the Discussion Guide. Representatives of the Woman's Auxiliary of the American Medical Association, homemaker organizations social work and nursing groups were asked to comment on the usefulness of the film. These statements have been incorporated into the final version of the Discussion Guide.

As pointed out in the summary remarks of this developmental project, the film presents three case-histories in an effort to give a comprehensive view of some important types of activity of homemaker services. The first situation shown is the home of an aged couple who would have to be institutionalized if homemaker services were not available. Then, there is the home with a large number of children where the mother is disabled and is being retrained to carry out her household duties. The third situation is a home with a mother who is under short-term treatment in a mental hospital.

Information about the availability of *Home Fires* has been disseminated to the following groups: The National Conference on Social Welfare; The Women's Auxiliary to the American Medical Association; The Ortho-Psychiatric Association; The American Nurses Association; The National Council on Homemaker Services Forum participants and members.

Perhaps the most significant aspect of this project is that it helps to show the way for vocational homemaking teachers to take on a greater realm of service and responsibility outside the confines of their laboratories and classrooms and into the community where they are so badly needed.

Child Development Training

2:7 "CHILD DEVELOPMENT TRAINING PROGRAM FOR VOCATIONAL HOME ECONOMICS TEACHERS" BY HELEN SULEK. NEBRASKA UNIVERSITY. 1967. 111 PAGES.

The immediate purpose of this University of Nebraska project was to conduct a workshop providing intensive training for selected vocational home economics teachers who, in turn, would set up occupational training programs for high school students seeking future employment as aides or assistants in child centers. Additional objectives were given: (a) To encourage the adolescent to remain in high school and to equip herself with a marketable skill, and (b) to make available a source of better trained aides and assistants for employment in day care centers, thus raising the standards of care provided for young children.

A 6-week summer workshop was conducted for 28 vocational home economics teachers from 20 states. The program included two courses at the graduate level: Human Development and the Family–the Child and Family in the Community, and Nursing School and Day Care Practicum.

Field trips were taken to such agencies as the Child Guidance Clinic, Family Service Association, State Department of Public Welfare, the State Home for Children, and the Nebraska Psychiatric Institute of the College of Medicine.

The latter portion of seminar sessions was concentrated on the preparation of trainees for setting up their own child care training programs, and the development of appropriate curricular materials.

When speaking of the program's results, the report states that trainees gained a better understanding of the adolescent, her orientation to the world of work, and her training for employment in child care services Also, the trainees developed, through

cooperative efforts, an extensive compilation of materials for use in setting up a child care training program. These materials, which are contained in the report, cover three areas: The Child Care Training Program for Senior High School Home Economics Students; Orientation to Child Care Employment, and Development of Job Skills for Work With Young Children.

A follow-up evaluation of the program, derived from progress reports submitted in December, revealed that nine of the communities represented by trainees had child care training programs in operation. Another three districts planned to initiate programs the following year, and six more indicated a need for further planning prior to the eventual development of a child care training program at the secondary level.

In concluding remarks is the statement that there is a growing need for child care training programs at the high school level, both from the standpoint of preparing the adolescent girl for employment and of providing a greater supply of well-trained child care workers. It was also concluded that a six-week summer workshop is a minimal but practical and effective means of preparing teachers.

It is hoped that the child care programs for senior high school home economics students which are developed will, whenever possible, incorporate a fundamental precept of sound vocational education—live work. To study the care of children in theoretical terms leaves out the most vital part, the interaction between small children and young women. What are needed then are many more child care centers for working mothers, conducted by school systems. These centers would provide an important community service and, at the same time, they would give both students and teachers an excellent learning laboratory.

TOPIC THREE: Food Service Occupations

Curriculum Development

2:8 "STATUS OF CURRICULUM DEVELOPMENT IN THE FIELD OF COMMERCIAL FOOD AT THE NON-BACCALAUREATE LEVEL" BY MILDRED B. BARNARD. COUNCIL ON HOTEL, RESTAURANT AND INSTITUTIONAL EDUCATION, ITHACA, N.Y. 1967. 167 PAGES.

This project reports the result of a national survey of nonbaccalaureate commercial food programs. The study had six specific objectives.

—To locate existing programs of training for food preparation and service, and to collect and review their statements of philosophy and patterns of organization.

—To collect instructional materials now used in those programs.

—To study intensively the programs of six selected high schools representing four approaches to this type training.

—To prepare suggested organizational patterns for schools planning to develop programs.

—To prepare basic curriculum materials and make them available to interested schools.

—To survey instructional practices employed and make them available to interested schools.

The Council on Hotel, Restaurant and Institutional Education (CHRIE), recognizing the need for a clearinghouse of information about commercial food training, was involved in the initiation and conduct of this study.

Speaking of changes in supply and demand of food workers, the report cites the long dependence on European trained chefs and "food artists" who, in turn, trained others. As long as there was an adequate supply of European craftsmen who were prepared by a rigorous program of apprenticeship, little need for training was seen in America. As immigration restrictions shut off the supply of Europeans, it became apparent to the hotel and restaurant operators that home-grown solutions to the problem would be needed. At an earlier period, the European system of apprenticeship was tried, but it never gained wide acceptance. Now, the emerging position of Technical Cook is described. This person, according to the report, can develop standard recipes and adapt himself to new methods of cooking, particularly for a growing segment of the industry, institutional and chain restaurant operation.

Among the findings of the survey, most significant is the one that the small number of existing programs could not possibly meet the growing nationwide needs of the hospitality and service industry. Although there has been more growth in the past 2 years than in the previous 20, it was noted, the need remains crucial.

Other important findings were:

—No one type of organization within the high schools was found to be superior to another in preparing students for industry.

—The many levels of employment opportunities in the hospitality and service industry can accommodate many and varied abilities.

—Changing demands of the food industry have resulted in a shift in emphasis on training for chefs and food production personnel. Technical advances and new products reduce dependence on the "old time" chef. The growing segment of our industry encompassing fast food — institutional and chain operations—requires the technically trained person with adaptability and versatility.

—There is a dearth of help readily available for teachers and administrators in these programs.

This investigation points out a most serious weakness in the Federal Administration of Vocational Education. That is its failure to develop large-scale national or regional curriculum development laboratories, units which have the budget, technical competence, stability and stature to continually assess the needs for vocational instruction in various occupations and to develop, revise and update appropriate curriculum guides and materials.

Work Instruction Programs

2:9 "WORK INSTRUCTION PROGRAMS FOR THE FOOD SERVICE INDUSTRY" BY THE DEPARTMENTS OF INSTITUTIONAL MANAGEMENT AND INDUSTRIAL ENGINEERING, KANSAS STATE UNIVERSITY. 1967. 53 PAGES.

"The Food Service Industry now has a working force of about three million. An acute shortage of skilled employees exists and many expect the problem to increase as hospitals and food services expand. The National

Restaurant Association estimates the food service industry will create 75,000 new jobs each year and will require 150,000 replacements annually." These remarks set the purpose for the Kansas State University project to develop instructional programs for the food service industry.

Two specific objectives were given: To develop efficient work methods for 100 typical tasks performed by employees for the cluster of occupations in the food service industry, and to develop programmed learning media for communicating these methods to employees.

Questionnaires on food industry needs, together with an example program which included slides, a quiz and script, were distributed to 500 members of the National Restaurant Association, 50 school lunch managers, 50 hospitals having members in the American Dietetic Association, and 50 college and university residence halls. Also contacted were 150 vocational-technical schools which were conducting food service programs.

Returns on the questionnaires were disappointing. "Sixty five percent of this select sample didn't even return the slide programs even though they had a stamped addressed return envelope in their hands. Another 15 percent returned the programs with an unanswered questionnaire; most just answered what types of programs they wanted. . . . The questionnaire seems to have been a waste of time and effort, although it did point out the lack of effectiveness of direct mail as a method of obtaining information from the industry."

The original concept of the project had been short, highly specific self-instruction programs that were very pictorial, i.e., 35 mm colored slides with no sound. It was discovered that as programs were developed they could effectively communicate the "how" of a task; the "why," however, was not easy to demonstrate pictorially. Because of this, a script was developed which would be read either by the trainee or the teacher.

It was recommended that, inasmuch as many restaurants and institutions did not have slide projectors available, a booklet of color photographs could also be developed.

Ten program topics were completed:

Dipped Salad Assembly
Cleaning a Meat Slicer
Making Salad Sandwiches
Making Meat Sandwiches
Making Change
Breading Foods for Deep Fat Frying
Frosting a Cake
Cutting a Cake
Portioning Pudding
Cutting a Pie

Each of these programs is available at cost ($7 apiece) from Department of Institutional Management, Kansas State University, Manhattan, Kan.

TOPIC FOUR: Career Opportunities in Health Services

Illinois Program

2:10 "PRACTICAL NURSING IN ILLINOIS: A PROFILE" BY ROBERT TOMLINSON. ILLINOIS UNIVERSITY, ILLINOIS STATE BOARD OF VOCATIONAL EDUCATION. 1967. 172 PAGES.

This is the first of five planned publications to present research materials developed from a basic project entitled *An Integrated, Longitudinal Study of Practical Nursing.* The basic study gave attention to the nature of the population of practical nurses in Illinois and Iowa, their employment patterns and preferences, the recruitment and selection of PN students, and the programs through which they were prepared.

The purpose for this report is stated to describe conditions, assess numbers and draw a profile of practical nursing in Illinois. Speaking of the situation in which many competing organizations and educational institutions are involved in health services education, with the resulting fragmentation of program and duplication of effort, the report calls for a much more systematic approach.

The report's main divisions include a historic review of nursing education in Illinois, statistical data depicting the number, geographical location, mobility, and other characteristics of practical nurses licensed in Illinois, patterns of employment and unemployment, and a section devoted to summary statements and conclusions.

A 10 percent sample of all persons who ever obtained a practical nurse license in Illinois was obtained. The number was 1,435. From this group, a sub-sample of 1,160 persons, or 80.8 percent, had active licenses. These were the persons who were used as the basis for gathering information. This group was categorized on three primary variables: Currency of license, in-state or out-of-state residence, and educational basis of licensing.

Important indicators from data obtained show that a high proportion of LPN's in Illinois were born out-of-state and moved to Illinois both before and after PN education. "They are highly stable individuals who tend to remain in the same geographic area where PN education was obtained and to have an exceptionally high rate of employment in all services and types of health institutions.

The summary section speaks of the very high return on investment of practical nurse education and the implications of this fact on other forms of health service education. "The application of resources to practical nurse education in Illinois has probably returned a greater dividend in health care per unit investment than in any other area. Returns have occurred at federal, state, community, and health-facility levels as well as to the individual participating in the program. . . . Relatively small previous investments in practical nursing education have paid handsome dividends; additional support on a broader scale to all health occupations may well return in equal or greater proportion."

Bio-Medical Equipment Technology

2:11 "DEVELOPMENT AND EVALUATION OF EDUCATIONAL PROGRAMS IN BIO-MEDICAL EQUIPMENT TECHNOLOGY, PHASE I" BY TECHNICAL EDUCATION RESEARCH CENTER, INC. 1967. 160 PAGES.

The language of this investigation would lead the reader to assume that all of the various types of jobs in the bio-medical equipment technology field will be filled by men. Yet there is little evidence to justify why this should be. Certainly, the proposed training program and the nature of

the work performed should offer no special obstacle to women. The report is presented here mainly as an example, to remind those who have concerns for the vocational education of women that there are many emerging job opportunities that call for technical knowledge and skill, rather than muscle power.

Recent advances in the fields of electronics and instrumentation have resulted both in the acceleration of medical technology in terms of equipment and procedures, and the creation of a need for people able to understand and effectively utilize these new gains. A need for technicians capable of servicing and maintaining the bio-medical equipment used in hospitals and medical research institutes, the report states, has opened up a new area of employment—one which requires its personnel to be trained specifically to meet its needs.

Indicating that few educational programs now exist to prepare men specifically as bio-medical equipment technicians, the report proposes that the lack of qualified personnel may impair the quality and efficiency of the nation's health services.

The purpose of the project was threefold:

—Assuming that there is a need for bio-medical equipment technicians, the extent of that need must be determined.

—Specifications of the need: Location and extent of employment opportunities, specific job functions and characteristics.

—Design of a preliminary framework of a curriculum which will adequately prepare BMETs.

Little Research Done

A preliminary survey strengthened previous impressions that little, if any, relevant occupational research has been done and that few formal educational programs exist. "These technicians at work in the field typically have either electronic, electrical or instrumentation backgrounds. They lack training to varying degrees in the basic educational subjects underlying this multi-disciplinary technology. Their on-the-job training is usually restricted to providing them with proficiency in specific equipments of interest to their employers."

In view of the lack of existing occupational information and tested instructional materials, it was concluded that it would be premature to publish a curriculum guide until further pilot testing and evaluation had been accomplished. Rather, it was decided that primary effort should be focused on such items as emerging employment opportunities, job functions and other characteristics of bio-medical equipment technicians. The objectives of the project were, therefore, modified to the following:

1. To determine by means of occupational research the employment opportunities for bio-medical equipment technicians and to identify the functions and other characteristics of such technician.

2. To develop a preliminary curriculum outline or structure for post-high school educational programs in bio-medical equipment technology.

In order to achieve these objectives a field study was designed. Structured interviews were held officials in the six New England States, New York, New Jersey and Pennsylvania. The sample comprised three major groups of prospective employers of BMETs: hospitals, bio-medical equipment manufacturers, and medical research institutes.

Field Study Results

The field study results are reported in two parts, "Need for and Characteristics of BMETs" and "Preliminary Curriculum Outline for BMETs." Analysis of data obtained led to the following conclusions:

1. There is a current need for between 1,350 and 1,450 technicians to service and maintain bio-medical equipment in the New England and Mid-Atlantic regions.

2. This need, projected to 1970, increases to between 3,200 and 3,700 BMETs.

3. The greatest opportunity for employment is with manufacturers of bio-medical equipment, although the more sophisticated jobs are found in hospitals and research institutes.

4. There are four general job types that a BMET will fill:

(a) Rudimentary service and maintenance under close supervision by the production manager in the manufacturer setting or the chief engineer in the hospital setting, and providing an average salary of $6,800.

(b) General service and maintenance requiring greater competencies not only with respect to the quality of his work, but also with respect to the number of tasks expected of him, and supervised to a greater degree by professional people and providing an average salary of $7,400.

(c) Sophisticated service and maintenance that would involve design and modification of equipment almost exclusively under the supervision of professional people and providing an average salary of $8,400.

(d) Sales-oriented service under the supervision of the sales manager, and providing an average salary of $9,000.

5. At present, there are people currently engaged in the service and maintenance of bio-medical equipment. However, the following impressions resulted from the discussions of this aspect were that a part of the interviews.

(a) The demand for technicians greatly exceeds the supply and the situation will get more pronounced with time.

(b) Those technicians now servicing and maintaining bio-medical equipment have typically been drawn from a variety of backgrounds, primarily either electrical, electronic, or instrumentation. Virtually none have been formally trained in the service and maintenance of bio-medical equipment. A considerable period of on-the-job training is typically required.

6. The technician capable of filling the existing and developing employment opportunities for BMETs identified by this field study will be a new type of technician. His preparation will require a new type of interdisciplinary curriculum.

Three Specific Recommendations

Three specific recommendations were made:

—Educational programs in bio-medical equipment technology should be planned and implemented to provide a minimum of 2,000 BMETs per year, beginning as soon as possible.

—Because of the unique curriculum requirements of this emerging technology, schools cannot expect to develop adequate programs for BMETs by utilizing combinations of existing courses and instructional materials

without making major modifications and additions.

—A continuing, intensive research project can and should be carried out, based upon the occupational information developed in this project, to systematically develop, pilot test, and evaluate degree type of curriculum for BMETs. The curriculum should be broadly generalized to be applicable to many post-secondary institutions.

Mental Health Nursing

2:12 "MENTAL HEALTH AND PSYCHIATRIC NURSING IN PRACTICAL NURSE EDUCATION" BY ANNIE L. CRAWFORD. SOUTHERN REGIONAL EDUCATION BOARD, ATLANTA, GA. 1967. 52 PAGES.

The two-week clinical workshop and three-day follow-up conference described in this report were designed to promote improvement and expansion of mental health and psychiatric nursing in practical nurse schools of 14 Southern States. The project was initiated in response to statements of need by administrators of psychiatric services and requests of practical nurses.

According to the report, recent developments in treatment programs have made the need for pre-service instruction in psychiatric nursing more explicit and urgent. "Extensive use of drugs in treatment requires nursing personnel qualified to administer medicine and to observe and record changes occurring in patients who are receiving drugs. Increasing numbers of psychiatric patients are being treated in general hospitals and other community facilities, including nursing homes. Substantial numbers of licensed practical nurses are already employed in these facilities. The demand for many more is well illustrated in reports and recommendations which have been published recently."

Two objectives for the program were established: To instruct teachers of practical nurse students with recent developments in knowledge, attitudes and skills in psychiatric nursing, and to develop educational objectives, curriculum, instructional materials, and procedures for use in teaching mental health and psychiatric nursing to practical nurse students.

Thirty participants in the training program were directors and instructors in schools of practical nursing from the states participating in Southern Regional Education Board Mental Health Training and Research Program. The faculty was comprised of three specialists in psychiatric-mental health nursing and three clinical instructors. Professional staff members of Western State Hospital and De Jarnette Sanitarium also participated in the teaching.

Trainees were given clinical practice assignments with hospital patients. They also attended and participated in lecture discussion sessions and treatment program activities; worked with instructors to develop objectives, content, methods and materials; made plans for identifying and organizing clinical experiences for instruction of students, and planned workshops and activities to assist instructors to update knowledge and skill in their respective states.

Five months later, trainees reassembled for a follow-up conference. They reviewed problems encountered in implementing workshop plans, identified needs and resources and made recommendations for further action.

Progress Measured

The NLN Achievement Test in Psychiatric Nursing was administered at the program's initial assembly. "More than a third of the trainees had no previous basic instruction in psychiatric nursing. The basic preparation of more than half of the others had been 15 to 25 years previously. Members of the faculty felt that some appraisal of trainees' current knowledge of mental health and psychiatric nursing theory and practice would help individuals and faculty assess needs and plan content and learning experiences necessary to accomplish project goals."

The test was repeated the last day of the workshop, and substantial gains in percentile rank were obtained. Examples of change given in the report are: 04 to 23, 05 to 32, 14 to 77, 19 to 61, 41 to 96, and 79 to 98. The increase in the median percentile rank for the group was 30.

Other accomplishments of the workshop were reported. These included the preparation of instructional materials for use in psychiatric nursing and the organization of the following specific recommendations:

—Teach mental health and psychiatric nursing concepts in all practical nursing programs.

—Ask psychiatric nurse leaders and other mental health professionals in the community to assist with curriculum planning.

—Plan and structure field trips to local mental health agencies to insure positive outcomes and desirable learning.

—Make effective use of literature, films and teaching aids available through mental health agencies. Identify mental health services available within the community.

—Initiate the planning, by the workshop participants, of a series of workshops, to upgrade knowledge and ability of all instructors in the state to teach mental health concepts. Invite professional and practical nurse organizations to join in sponsorship and planning.

—Seek vocational education agency interest and support for inservice education to update psychiatric nursing knowledge for nursing service staff members in areas to which students are assigned.

—Make available a list of postgraduate programs in psychiatric nursing for licensed practical nurses.

—Encourage employment opportunities for licensed practical nurses in psychiatric nursing services and inform students about them.

—Plan regularly scheduled continuing education for instructors in practical nurse education programs to keep knowledge and skill current.

—Plan an additional follow-up session for this workshop in about a year to further evaluate success in implementing the projects which have been initiated.

Health Technology

2:13 "INVESTIGATION TO PRODUCE GUIDELINES FOR HEALTH TECHNOLOGY PROGRAM PLANNING" BY CAROL KAHLER. 1967. 37 PAGES.

The objective of this project was to promote increased use of two-year collegiate institutions for the preparation of personnel in health technologies through the development and dissemination of a set of guidelines.

The study was undertaken by a joint committee comprised of National Health Council and American Association of Junior Colleges representatives. Their first step was the identification of problems which have acted as deterrents to the development of health technology education programs. Problems thus identified were:

—Junior college programs hastily conceived, without needed preliminary planning.

—Junior college programs with limited job success for graduates. Because professional standards were at variance with program content.

—Unidentified roles for technicians within many professions which apparently need auxiliary personnel.

—Unclear educational requirements for technicians or requirements which are not geared to junior college curricular patterns.

—Insufficient or unsatisfactory relationships between clinical facilities and educational institutions.

—Program accreditation problems, especially for the junior college with multiple health programs.

—Problems of critical need for instructors and of need for expanded teaching resources.

—Hesitancy of students and colleges to enter some health technology fields if progression to higher levels of education and employment appeared impossible.

—Misuse of associate degree graduates through assignment of responsibilities beyond those for which their training had prepared them.

Committee discussion highlighted the various domains of authority affecting the education of personnel in health occupations. Examples given include the following.

Hospitals, clinics, laboratories, professional schools (especially dental schools) had traditionally educated their own auxiliary personnel.

Some medical and dental auxiliary personnel had faced hardships in moving from apprentice backgrounds; thus, fields often contain workers with an unusually wide range of academic education.

In some instances manufacturers of technical equipment provided the only source of instruction for personnel. This was particularly true in areas with a rapidly developing technology and great personnel shortages.

Some junior colleges with multiple health programs questioned the baccalaureate tradition of "program approval" in public health fields. The absence of any decision by the National Commission on Accrediting about program approvals within junior colleges served to increase anxiety concerning the ultimate decision.

Advocates of increased amounts of general education potentially challenged wage scale arrangements, especially with present conditions of health facility personnel shortages.

In response to public need, state and federal authorities for protection of public health were taking a stronger position in urging the growth of educational programs.

The instrument, *A Guide for Health Technology Program Planning,* was reported to be in publication. It was suggested that distribution would take place through the National Health Council and the American Association of Junior Colleges.

There are several very important lessons for the educator in this report, especially those who plan to initiate health technologies programs for the first time. One, it is imperative to know and work in close harmony with the professional service that is primarily responsible. Failure to do so will surely lead to grief. Also involved must be the various employing agencies, such as hospitals, laboratories and units of government.

The educational institution must be thoroughly familiar with all of the regulations, policies and practices that will apply to their graduates, and know them before the curriculum is developed.

Yet another reminder: if supervised clinical practice is to be an essential part of the instructional program, all details of this practice, together with a formal contract of affiliation, should be worked out before students are admitted for training.

Medical Records Technician

2:14 "A Comprehensive Project To Develop a Complete Curriculum in the Area of Medical Records Technician" by Robert L. Love. New York State Agricultural and Technical College. 1968. 99 pages.

This project was developed with three main objectives: (a) to carry out a nationwide study of needs in the field of medical technology; (b) to develop a curriculum for medical records technicians, and (c) to explore possible hospitals to be used as part of an "extended campus."

The purpose of the national survey of hospitals was to obtain reactions with respect to a two-year medical records technician curriculum and to determine their anticipated employment needs. The investigation was carried out by surveying the following:

1. A total of 330 hospitals in eight Eastern states: Connecticut, 64; Maine, 41; Maryland, 56; Massachusetts, 60; New Hampshire, 7; Pennsylvania, 55; Rhode Island, 25, and Vermont, 22.

2. Ten hospitals in each of the other 41 states, excluding New York.

3. Three hundred hospitals in New York State.

Each hospital received a questionnaire designed to gather data concerning such conditions as present and future employment, salaries, hours of work, accreditation and licensing requirements, and the hospital's suggestions as to college courses for medical record technicians. Responses were received from 503 hospitals.

The report states that the 1965 Guide Issue of the *Journal of the American Hospital Association* listed 7,127 hospitals. Assuming that the 503 hospitals responding to the survey questionnaire are a representative sample, the study projects a current staff of 18,000 persons employed as medical records technicians. Further projections indicate that another 9,810 technicians, an increase of 54 percent, will be needed by 1975.

"One of the major concerns of the American Association of Medical Record Librarians, and also of various local medical record librarian associations, is the lack of educational programs designed to prepare qualified medical record technicians."

Suggested Curriculum

The questionnaire asked the hospitals to specify which of a list of 12 courses should be included in a medical record technology curriculum. Responses were as follows:

	Course Title	*Percent of Hospitals Suggesting Inclusion*
1.	Filing	94%
2.	Anatomy and Physiology	92%
3.	Typing	85%
4.	Business Law	85%
5.	Medical Terminology	63%
6.	Office Machines	62%
7.	Mathematics	59%
8.	Data Processing	48%
9.	Accounting	43%
10.	Manual Shorthand	37%
11.	Machine Shorthand	15%
12.	Machine Duplication	12%

Using this data as supporting evidence, and incorporating the general education requirements of the State University of New York, the following curriculum was developed. (*See chart in adjacent two columns.*)

MEDICAL RECORD TECHNOLOGY

Major Field	General Studies	Others
REQUIRED—38 Hours	REQUIRED—35 Hours	REQUIRED—16 Hours
Mrs. 103 Med. Rec. Sci. I	Eng. 103 English I	Data 253 Data Processing I
Mrs. 203 Med. Rec. Sci. II	Eng. 203 English II	Data 414 Computer Program
Mrs. 303 Med. Rec. Sci. III	Eng. 303 English III	MSD. 101 Orientation
*Mrs. 216 Med. Rec. Sci. IV	S.S. 403 Prin. of Econ.	**Sec. 182 Typing I
Mrs. 405 Med. Rec. Sci. V	S.S. 503 American Gov't.	Sec. 282 Typing II
Mrs. 505 Med. Rec. Sci. VI	S.S. 603 Intern'l. Rela-	Sec. 382 Typing III
Mrs. 605 Med. Rec. Sci. VII	Bio. 404 Anat. & Physiol. I	Spch. 312 Speech
Mrs. 113 Med. Terminology and Machine Transcription	Bio. 504 Anat. & Physiol. II	Math. 513 Statistics
Mrs. 312 Med. Machine Transcription	Psych. 123 General Psychology	
	Psych. 223 Human Development	

*MRS. 216 Medical Record Science IV: All students will work a minimum of *ten weeks* in a college approved hospital medical record department during the summer quarter between the first and second years. This will be supervised by the hospital and the college. Students will be given a list of the hospitals and a certain degree of selection will be available.

ENTRANCE REQUIREMENTS

1. One year Biology
2. One year Math
3. Typing would be helpful but not required

GRADUATION REQUIREMENTS

1. Minimum total credit hours—98
2. Minimum cumulative index—2.0
3. Departmental recommendation

**High school record determines placement in typing courses.

Teacher Education Institute

2:15 "MEDICAL LABORATORY ASSISTANT TEACHER EDUCATION INSTITUTE—PILOT PROGRAM" BY REX D. COUCH. NATIONAL COMMITTEE FOR CAREERS IN MEDICAL TECHNOLOGY, WASHINGTON, D.C. NATIONAL COUNCIL ON MEDICAL TECHNOLOGY ED., MEMPHIS, TENN. 1968. 108 PAGES.

This program's purpose was to design a plan to update and upgrade instructors of medical laboratory assistants, and to develop a teacher education curriculum. An initial step was to conduct a pilot teacher education institute. This institute, held at the University of Tennessee for 16 teachers, was conducted to: (a) Develop confidence and competence of participants through involvement with new educational techniques; (b) help promote the realization that teacher education is a continuous process, and (c) use accepted testing and observation techniques to determine participants' progress.

A planning group, comprised of pathologists, medical technologists and educators, established criteria for selecting candidates to the institute, and worked on such other aspects of the program as program objectives, instructional content and evaluation.

An eight-step process of training was used to plan the institute. These steps were: Develop job standards, identify needs, establish objectives, develop curriculum, select method and techniques, obtain instructional resources, conduct the training, and evaluation and feedback—a component applied to all other steps.

The institute program was organized in accordance with topics that included developing program objectives, role of the instructor, psychological factors of teaching and learning, teaching methods and techniques, group dynamics and communications, and occupational analysis procedures.

It was decided that if participants were to be assisted in developing their own teaching in terms of behavioral objectives for their students, the institute should be conducted with the same approach. It was suggested, therefore, that all learning areas should culminate in an activity where each participant could demonstrate achievement.

The primary purpose of the time devoted to the areas of writing learning objectives and career planning was to learn through participation. A self-analysis of a concept of teaching-learning was required of each person enrolled. "Time was devoted to developing the requirements of a well-conceived plan for learning, the foundation of which should be well-defined learning objectives stated in behavioral terms."

In the remainder of the institute, an attempt was made to maintain a balance between theory and practice in content, between student activity and lecture-demonstration in methodology. In the sessions devoted to practice teaching and to the use and preparation of visual aids, considerable student participation was reported. Micro teaching was used as a learning technique during these practice teaching sessions.

When evaluating the program, participants recognized that the institute was mainly about teaching rather than the technical aspects of the subject. However, they seemed to feel that the instructors in such an institute should be able to help somewhat in the transfer of teaching principles to the particular subject field involved. In their suggestions they made frequent mention of the need for examples from the field of medical laboratory assistants. They also suggested that instructors observe medical laboratory assistants in action, to show how teaching techniques could be used in medical laboratory assistant teaching situations.

Subprofessionals

2:16 "THE SUBPROFESSIONAL—FROM CONCEPTS TO CAREERS" BY EDITH F. LYNTON. NATIONAL COMMITTEE ON EMPLOYMENT OF YOUTH. 1967. 186 PAGES.

The three-day conference to expand and develop subprofessional rules in Health, Education and Welfare, conducted by the National Committee on Employment of Youth, had as its prime purpose the consideration of how to move the employment of subprofessionals from concept to greater actuality. It was attended by 66 persons chosen for their leadership and experience.

The report consists of a summary of discussions, an evaluation of conclusions reached in these discussions and recommendation for the next steps needed for the use of subprofessionals in human-service occupations. In addition, the report contains advance papers prepared for participants, summaries of individual workshop sessions, tests of panelists presentation, and the list of attendence.

Among the topics treated in prepared presentations are those which relate to the current status of permanent subprofessional employment, education and careers in human service, the community action program model, and selected models of subprofessional careers. Workshop sessions dealt with such items as needed changes, obstacles to change, overcoming obstacles, and recruiting, selecting and developing subprofessionals.

According to the report, the title "subprofessional" has as yet no clear and consistent meaning. "A superior title is still in the offing. For the present, subprofessional is working title defined by the following principal characteristics:

Subprofessional jobs consist of subsections of work, heretofore done by professionals, for which full professional training is not necessary, or of new functions that expand the scope of professional service.

The jobs are designed at the entry level so that persons with less than the training or the academic credentials that usually accompany professional status can, in relatively short periods, become sufficiently skilled to perform the work.

The jobs allow opportunity for individual development, regardless of traditional credentials or other arbitrary symbols of status, and permit advancement to duties of greater challenge and responsibility.

Advancement is accompanied by increments of earnings and access to promotional avenues not dependent exclusively on full-time formal training financed by the individual.

Within the general focus of the study, three major groups of issues were considered. The first dealt with how subprofessionals should be employed. "Should a teachers aide, for instance, or a nurse's aide, be a handmaiden to the individual teacher or nurse, or could employment of auxiliary personnel become a stimulus for a new and improved division of labor in education, or in health?"

The second issue-complex consisted of the internal and external arrangements needed for establishing subprofessional service careers. "What changes were needed in budgeting, in personnel policies and practices, and in the positions taken by professionals? What modifications were required in existing statutes, and what new legislation was needed? What obstacles in civil-service structure and union agreements needed to be overcome? What steps could be taken, and by whom, to break down the barriers to effective manpower innovation? Where were the funds to come from?"

The third set of issues involved the supply of subprofessionals. "The disparity between the theoretical conceptions of subprofessionals and the realities of the initial efforts to create jobs for them suggested that a concepted base needed to be developed and refined."

TOPIC FIVE: Women in Industry

(See Studies in Process in Bibliography.)

TOPIC SIX: Career Patterns For Women

Women's Work Patterns

2:17 "IMPLICATIONS OF WOMEN'S WORK PATTERNS FOR VOCATIONAL AND TECHNICAL EDUCATION" BY SYLVIA L. LEE. 1967. 80 PAGES. "IMPLICATIONS OF WOMEN'S WORK PATTERNS FOR VOCATIONAL AND TECHNICAL EDUCATION", "ANNOTATED BIBLIOGRAPHY." 1967. 36 PAGES.

This report is the result of a project devoted to the implications of women's work patterns for program planning in vocational and technical education. It was developed in order that persons in vocational education (a) know more about labor force participation of women, and (b) consider the implications of this information in planning.

The Kaufman study of the *Role of Secondary Schools in the Preparation of Youth For Employment*—which reported that the fundamental weakness of vocational offerings for females was the limited number of options—is cited to illustrate the existance of a serious problem. "Few girls recognized that they were likely to be working sometime during their lives and were not aware of their probable vocational careers. In contrast to this, it is reported that 9 out of 10 women will work at paid employment sometime during their lives, that single women will work an average of 40 years and that married women will work on the average of 23 years."

(The *1965 Handbook on Women Workers* (U.S. Department of Labor, Woman's Bureau, 1965 Handbook), and the 1963 Report of the President's Commission on the Status of Women, *American Women*, are given as sources of additional information.)

The report reproduces a series of 42 graphical presentations of data, mainly derived from the U.S. Department of Labor, Bureau of Labor Statistics. Then, it presents a chapter titled "Implications For Vocational and Technical Education." Important topics dealt with in this section are images and attitudes, the educational system in-

cluding existing programs and new possibilities, and vocational guidance and counseling.

In connection with the roles of women, questions were raised about the possibility of discrepancies between what women are and what they should be. "In learning about the choices women make, does it have to be a choice between marriage and a career? Could it be a combination of the two? Has the planning of educational programs provided for a variety of roles? Have we educated for choice? What is the balance among family responsibilities and employment? Have we taught that many roles may be incorporated into one lifetime?

"In view of the number of women entering or re-entering the Labor Force in their 30s and 40s, can we make it socially *acceptable* for a woman to go back to school to learn skills or update those learned previously? Could we emphasize less sex differentiation. . . . Does equality mean sameness?"

A major problem in the image of work for women, the report states, is that the language used is largely borrowed from discussions of men's work patterns. In the middle of a shift from women not working outside the home to increased employment for women, it is suggested that some of the stan-

"PLAIN TALK"

A FUNDAMENTAL WEAKNESS in vocational education for girls and women has been the limited number of options open to them. In a period when women comprise nearly 40 percent of the work force, when 9 out of 10 women will work at paid employment sometime during their lives, and when a great number of new careers in emerging technical fields are begging for qualified personnel, the need for concern should be self-evident. It is indeed encouraging, therefore, that many of the research projects reported in this issue are directed toward the expansion of career opportunities for females.

Fifteen of these studies are subject oriented. They include programs in scientific secretarial work, psychiatric aspects of practical nursing, medical recordkeeping, child care, and the preparation of home service workers. Also treated are investigations into two occupations that have not been closely associated with women's work: quantity food preparation and bio-medical equipment technology. These are presented here as examples representative of a large and growing group of occupations which appear to offer career opportunities for female workers.

Significant by its absence was research on the role of women in various phases of trade and industry. Although a great many women are now working in industry in a broad spectrum of operative, skilled and technical jobs and many of the older taboos against women workers are disappearing, the amount of research by educators has been very sparse. To find research directed to the vocational education of women in industry, it is necessary to get to other sources, particularly the Women's Bureau of the Department of Labor. Maybe HEW needs an equivalent counterpart.

The studies in health and medical categories document the severe shortages of trained personnel and the urgent need for wide-scale curriculum development activities in the field of emerging technologies. Some of the conditions and problems associated with para-professional health services, which are cited in Kahler's investigation to produce guidelines for health technology program planning, should be especially valuable to the administrator who plans to initiate new programs in health service fields. Certainly, he should understand the basic precept that all steps in program development must be accompanied with close and continuing consultation with the parent professional organization, and with all institutions and associations that would have interests in the program.

The Perkins investigation into clusters of tasks associated with performances of office work is a valuable source of guidance in business education. The job analysis approach to curriculum building, together with the establishment of job clusters designed for individualized instruction, has implications for both policy and practice.

The University of Nebraska project to prepare teachers in child development calls attention to a realm of home economics education which has a great potential. Day care centers for working mothers conducted by local school authorities have proven to be excellent vehicles for combining community service with live educational experience. Many more are needed. Another important trend in home economics education is the growing emphasis on field service activities, through which the knowledge and experience of home economists are imparted to sections of the community where they are most effective. Community home service work, needless to say, has its share of problems, but it also presents a great and challenging opportunity to make important contributions at the growing edge of social change.

The study of implications of women's work patterns for vocational and technical education, conducted by Sylvia Lee, is an especially important document. It calls attention to the growing importance of women in the work force, the limited range of vocational education opportunities typically available to them, and the general failure of guidance to fully appreciate and provide for the unique counseling requirements of high school girls. The multiple roles of women—housewife, mother and worker—and the need for vocational education opportunities at various levels of maturity are also studied.

dard stereotypes for working women need to be examined.

For example: "Are women more suited to artistic roles, noncompetitive jobs? Is it true that women tend to work 'women's work,' where competition is less; operate as a minority group in a self-fulfilling effort? Do women prefer to work for men? Do women have more absenteeism? There are laws protecting women. Are they needed? Are they outdated? Do they discriminate against men? Are they helping or hindering women? Are women being prepared for appropriate levels of employment? What of the many women who are employed below the level of their ability and education?"

It is reported that the attitudes of women toward work are important in determining the lifetime decisions and activities. "However, the attitudes of men in general, men in business and industry, and school personnel toward women's labor force participation are just as important."

The Educational System

The study asks some searching questions about the educational system. The fundamental one is whether or not present education is realistic in terms of current labor force participation of women. Other questions have to do with existing vocational and technical education programs:

"Is there flexibility in the programs? Are the hours when programs are offered convenient for post-high school women students with other responsibilities? Are there conditions within the community which cause women to be fearful (both teachers and students) of being 'out' at night and deter enrollment in evening classes? Do girls really know what and where their opportunities are? What are we doing to help people find themselves and set goals? What are the status problems associated with vocational education?"

Guidance and counseling for girls and women, the report states, must be oriented toward lifetime careers. "The role of guidance and counseling needs broadened interpretation, understanding and acceptance by counselor educators. The tendency to neglect vocational aspects of counseling must be overcome. Counselors who are not willing or not able to consider women's needs objectively should not work with girls and women. Those counselors who are only interested in the college-bound group should not be given responsibility for vocational counseling."

Research Recommendations

Many recommendations for needed research were made. "The development of a theory of vocational choice broad enough to encompass the realities of women's lives is essential. . . . Vocational educators need to know more about *input* (the people we have) in vocational programs. What are the characteristics of secondary students?

"What happens to girls and women after preparation for employment? There is need for longitudinal examinations of patterns of work (full-time, part-time) for women in relation to patterns of education programs, such as the study now being conducted by Parnes for the U.S. Department of Labor, Office of Manpower Policy, Evaluation and Research.

"Research should supply answers to problems cited in the area of employ-in the work force. How can women be educated to prepare themselves for opportunities for entering or re-entering the work force and for advancement? Who is responsible for providing information on new jobs? What kind of services might the homemaker need in order to enter work, i.e., child care facilities? Are women in the age group 45-55 entering the labor force for the first time or are they re-entering? What kind of training do they need?"

The study on women's work patterns is a truly signified document, one which deserves the attention of teachers and administrators and of guidance counselors, researchers and teacher educators. Its importance lies in the fact that it deals with basic problems that are common to the education of all girls and women. The statistical data presented here, together with articulation of timely questions on a variety of relevant topics, should stir the thoughts and actions of many.

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RESEARCH VISIBILITY

Synthesis / Application / Dissemination

POST-SECONDARY AND ADULT EDUCATION

VOCATIONAL EDUCATION is opportunity . . . "Opportunity," not unlike the words "people" and "service," is a key word of the vocationalist. The word is historically linked with the many forms of vocational education legislation and activity which have endured for more than 50 years. As vocational educators have attempted to promote and encourage educational opportunity they have been increasingly sensitive to its availability to *all* Americans. This challenge is becoming increasingly difficult to interpret and implement as vocational educators are confronted with the complex problems of the urban ghetto, the disadvantaged, the isolated, and the underemployed.

The provision and extension of opportunity is not simplified as vocational educators face up to their task in American style. We are zealous of our right to free choice of an occupation, and as educators we are dedicated to the protection of the privilege for all Americans. As the President's Panel of Consultants, the Advisory Council of 1967, and the present Vocational Education Amendments of 1968 affirm and re-affirm, the centrality of purpose in making vocational education continuous opportunity will be a challenge which is never fully achieved. At the moment we may have a noble start. Research, development, application, and dissemination have key roles to play in increasing the many benefits of vocational opportunity to all youths and adults.

Despite their persistent dedication to the provision of opportunity for youths and adults, vocational educators have chosen a "mean row to hoe" in relating the objective to their concerns for "people' and "service." It is possible that only through the medium of research and investigation, together with realistic application and evaluation, can vocational educators truly come to appreciate the dimensions of the task before them. No doubt, this fact is as true and appropriate to the vocational teacher as it is to the program administrator and members of an advisory committee. The challenge is persistent over the entire range of vocational programs, from the pre-vocational through the graduate school.

Vocational and technical education will continue to broaden opportunities for the people it serves as it applies numerous principles from its experiences of the past and employs new techniques which are yet to be acquired. It is the task of research and development, including their widespread dissemination, to sharpen-up and refine the old generalizations and to discover and implement some sorely needed new ones. Vocational and technical education will acquire increasing new meaning and stature as it:

Extends new opportunity through the sharper definition of people-needs, their understanding and participation in the world of work, their access to programs,

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EDITOR'S NOTE

Beginning with this issue, George L. Brandon, professor in residence (Pennsylvania State University) and Research Assistants Gary D. Thomas and Anne Ware have assumed the responsibility of preparing this department of the JOURNAL.

Research Visibility is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The *Research Visibility* report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-07[illegible]3, project 7-0633; "Synthesis and Application of Research Findings in Vocational Education").

the changing occupational requirements, their commitment to continuing study and growth . . .

Extends new opportunity through program flexibility, the quick change to meet occupational goals, the transferability of skills and knowledge, the courage and professional skill to change curriculums, the versatility to accommodate all students of interest and potential . . .

Extends new opportunity through balance of the program, the fine combination of excellence of scholarship and learning through direct experience, the recognition of the "nice to know" and the priorities of occupational growth and success, the mastery of the tool subjects and understanding of their use, the education of the whole citizen . . .

Extends new opportunity through continuous evaluation of student and program, the assessment of goals and progress towards them, the long-term follow-up of students and program strengths and weaknesses, the formulation of criteria by all concerned, the recording and sharing of educational and occupational data, the publication and dissemination of new techniques and program adjustments.

Traditionally, vocational and technical education programs for post-secondary youths and adults have been the growing edges for new opportunity. Current research and development continue to emphasize the importance of this aspect of vocational education and its relationship to a viable program of occupational education of opportunity for increasing numbers of persons of all ages in the states.

TOPIC ONE: Apprenticeship and other in-plant training

See Bibliography for information on availability of complete studies

"Research in Apprenticeship Training: Proceedings of a Conference," edited by Gerald Somers, Center for Studies in Vocational and Technical Education, The University of Wisconsin, Madison, 1967.

The papers included in this volume were presented at the Research Conference on Apprenticeship Training held in Madison in September 1966, which was co-sponsored by The Office of Manpower Policy, Evaluation, and Research, U.S. Department of Labor, and the Center for Studies in Vocational and Technical Education, The University of Wisconsin. The papers are viewed as important additions to the body of knowledge on the causes, consequences, process, and results of apprenticeship training in the United States.

"Related Instruction: Basic Problems and Issues"

In this report George Strauss, professor of business administration at the University of California, Berkeley, dealt with related instruction as it occurs in the construction, printing and machinist trades where the vast majority of apprenticeship is undertaken. Despite the disadvantages of schoolroom instruction—more expensive, less realistic as compared to on-the-job training, Strauss recommended that the present greater emphasis on schooling represents a healthy trend. For as it becomes more desirable for apprentices to receive a thorough, well-rounded training, the schools must play a larger role in the training process.

A hundred years ago law and medicine were learned on an apprenticeship basis—today these occupations are learned in schools and universities. A few trades now require all apprentices to go through a period of full-time schooling prior to work. Such classes are given in the day time to homogeneous groupings of students. Some arguments against pre-apprenticeship are that the apprentice won't learn much, or what he learns may be impractical; he must serve without pay which may reduce the number of well-qualified applicants; it is feared that such people will go to work for non-union firms; and it is feared that the decision as to who will enter the trade will be made by the education authorities rather than by the labor unions and management.

Despite these objections, Strauss felt that pre-apprenticeship should be encouraged, particularly if the amount of related instruction generally is to be increased. Perhaps trainees could be subsidized by the government, as is done in Canada and through the American MDTA. The question of selection is at least partly resolvable by inviting Joint Apprenticeship Committee members to act as advisers in examining applicants for training. Strauss recommended that before being admitted as a journeyman, an apprentice should be required to pass a comprehensive written and practical test—the prospect of a stiff but realistic exam may itself motivate apprentices to take school more seriously, and it will also help guarantee that graduate apprentices will be competent in all fields of the trade.

"Increasing Apprenticeship Opportunities Through Pre-Employment Training"

John S. McCauley, director, Office of Manpower Training Operations, Bureau of Employment Security, U.S. Department of Labor, reported on pre-employment training in apprenticeable occupations as a promising method of expanding the volume and improving the quality of apprenticeship in the United States. The advantages of such training are manifold: (a) the potential employer is assured that even the beginning apprentice would measure up to a certain standard of competence; (b) a pre-employment course helps a young person to decide whether or not he is really interested in the area, thus cutting down turnover rates in apprenticeship programs; (c) a foundation is provided for acquiring specific skills on the job; (d) minority group members who have taken such a course would have a better chance of scoring high on examinations for admittance to apprenticeship.

Under the Manpower Development and Training Act of 1962 (MDTA), funds may be provided for pre-employment training for prospective apprentices and pay the salaries of instructors and other institutional costs, and training allowances; however, only limited use has been made of this resource throughout the country.

McCauley suggested the following questions as important

subjects for research: How many persons should be provided pre-employment training each year in the various apprenticeable occupations? What should be the duration of pre-employment training in various occupations? Should all trainees who receive pre-employment training be expected to move into formal apprenticeship programs? For what portion of the on-the-job phase of a coupled project should employers be given financial help? How can supportive services best be provided to minority group members who may need special help in entering and completing an apprenticeship? What approach should be taken in communities where sponsors of apprenticeship programs are reluctant to participate in the development of re-employment programs?

"Negro Participation in Apprenticeship Programs"

F. Ray Marshall, professor of economics at the University of Texas, and his associate Vernon M. Briggs, Jr., presented an article based upon their findings from a research project financed by the Office of Manpower Policy, Evaluation, and Research of the Department of Labor. The article represents a summary of a study designed to identify and evaluate approaches and methods to increase Negro participation in selected apprenticeship programs. In addition to reviewing the available literature on the topic, the findings are drawn from extensive personal interviews with officials of the apprenticeship establishment (unions, employers and specialized government agencies dealing with apprenticeship) and with Negro youths who are participating in or who have sought entry into such programs.

Issues such as the perpetuation of discriminatory selection practices, union apprenticeship traditions like nepotism and control over supply considerations, the paucity of actual Negro applicants to programs, and the obstacles facing Negroes in passing written and oral examinations for admission are all reviewed in detail. More than simply indicating the trouble spots, an effort is made to determine the proper weight to be assigned to each of these problem areas. The article concludes with specific public policy recommendations pertaining to the demand for apprentices in general; the role to be assumed by anti-discrimination policies; and the measures needed to increase the supply of qualified Negro applicants.

"A Study of the Registered Apprenticeship Program in Wisconsin," by G. Soundara Rajan, Center for Studies in Vocational and Technical Education, Industrial Relations Institute, The University of Wisconsin, Madison, 1966.

The Wisconsin apprenticeship program is a joint group registered program, with both labor and management participating in the establishment of the terms and conditions under which apprentices may be trained and employed and all employers subscribe to the same set of basic standards. The success or failure of a registered joint apprenticeship program and the extent of its popularity among youths depend on many factors: (a) the degree of organization among employers and journeymen; (b) the general condition of trade standards; (c) the general economic condition of industry as a whole, and of those industries undertaking training in particular; (d) the amount of promotional work done by the agencies involved in the training program; (e) general working conditions and compensation paid to the apprentices; and (f) the nature of the laws on apprentice training in a given area.

There are two primary functions performed by vocational schools in the apprentice scheme: (a) providing related instruction and assisting in the selection of candidates by administering tests, and (b) helping employers and student apprentices to understand apprenticeship. Because related instruction is "the most important segment of training," it is necessary to have a periodic evaluation of subject matter, materials and equipment in order to maintain high standards. In Wisconsin this evaluation is done periodically by the schools themselves in cooperation with school advisory groups that are composed of equal representation of employers and employees and consultants from public agencies as necessary.

Rajan evaluates the apprenticeship program in terms of the objectives of the Wisconsin Apprenticeship Law as stated by the Industrial Commission in 1956: "(a) to assist in the development of better trained workers for the trades, and (b) to act as a protective measure for minors entering the trades."

To protect minors, the following procedural changes were recommended: (a) the field supervisors should contact the apprentice more often than once a year—preferably four times a year at least—in order to insure they are receiving the proper shop supervision; (b) the present practice of interviewing the apprentice in front of his employer should be changed so that the apprentice can discuss his situation freely; (c) field supervisors should have in-service qualifications enabling them to understand the problems which can arise between apprentices and their employers; (d) the field supervisors should have more of the responsibility for the apprentices' welfare, and if there is no joint apprenticeship committee he must accept sole responsibility for the welfare of the apprentice.

The apprenticeship program supplies less than 50 percent of Wisconsin's skilled labor because (a) the number of new registrations is smaller, and (b) the number of cancellations has grown in most trades. Therefore, much greater participation by the employers in the training program must be achieved so that the number of newly indentured may be increased, and the number of dropouts be reduced to a minimum. Labor views the overall objective of the apprenticeship program "to maintain and improve the skilled labor force." The U.S. Department of Labor estimates that each year 2 million newly trained skilled workers are needed; but only a small number of men attain journeyman status every year.

If apprenticeship is to function as a weapon against structural unemployment in Wisconsin the objectives of the program must be restated to include the development of a supply of skilled manpower which will meet the needs of industry and a policy statement that apprenticeship training is "part of an over-all national manpower and training

effort." It must also see that training is dovetailed with industry's technological progress in a manner to produce enough journeymen with the needed skills.

In order to accomplish this the Apprenticeship Division must be changed to allow it to initiate and carry out programs of skill development in cooperation with other State agencies, e.g., employment services and the State Board of Vocational Education, to make the apprenticeship program a meaningful device capable of meeting labor market problems. The Apprenticeship Division must also perform research on problems such as dropouts and apprentice mobility. And, finally, there must be a periodic evaluation of the Apprenticeship Division to see that it is fulfilling its goals, and that the goals have a current relevance.

Rajan has made some proposals for further research in this area. Because of the voluntary nature of the program, there is a need for a study of the role played by the local and/or area joint apprenticeship committees and the extent to which they participate in the selection of apprentices, their effectiveness in different trades, and their role as the local guardians of the apprentice in training. Because employers are reluctant to have apprentices because they fear they will desert them after training and seek employment in bigger companies, there should be a study of the apprentice mobility in Wisconsin to help settle the validity of this claim.

"Training of Maintenance Workers," by Sven Grabe, International Labour Office, Geneva, 1967, prepared for the Manpower Administration, Office of Manpower Policy, Evaluation and Research, U.S. Department of Labor.

This is a study of the problems of recruitment, training and adaptation of maintenance workers for highly mechanized or automated industries other than mechanical and electrical engineering. The main objective was to determine the principal trends and requirements of in-plant training for skilled workers engaged in machine setting, repair and maintenance operations in certain branches of industry in which production had undergone substantial changes during the past ten years. It was based on the assumption that in a period of accelerated technical change, recruitment and training of maintenance workers would be a major management problem, particularly in those industries other than mechanical and electrical engineering which are not equipped to provide complete in-plant training for such craftsmen.

Emphasis was placed on the chemical and food processing industries in four countries: Belgium, France, West Germany, and Sweden. Personnel records were studied, and practices and shortage situations were explored in discussion with manpower authorities, employers' organizations, training specialists and management staff, and this information was compared with two research projects relating to changes in recruitment and training in the iron and steel industry carried out by the International Vocational Training Information and Research Centre (CIRF) of the International Labour Office (ILO). Despite the general labor shortage, and contrary to what has been previously written, this study did not find that it had been particularly difficult in the past ten years for an industry to recruit a sufficient number of maintenance men or to adapt the knowledge and skill of existing staff to the new requirements of automated processes and installation of new machinery.

Total numbers of maintenance staff had remained stable or increased slowly with spectacular increases occurring in only a few cases; for example (a) when newly designed processes and equipment had been introduced, and (b) when the maintenance function had been expanded to include the design of new equipment.

The level of qualification of maintenance men was rising; workers without recognized qualifications as journeymen were no longer being recruited for maintenance; foremen previously promoted from the ranks were now being replaced by technicians trained in technical institutes. The existing staff at technician and worker levels had in many cases received in-service training organized by their employers, technical schools or new equipment suppliers. Most of the maintenance men had picked up much of what they knew about new equipment and processes from working on the installation of new machines and instruments alongside the suppliers' assembly-men and instructors.

In none of the companies had a shortage of maintenance staff been an obstacle to the introduction of technical change or new equipment. Vocational schools in Belgium, France and Sweden and the industrial and artisan apprenticeship systems in West Germany had been turning out a sufficient number of trained mechanics and electricians to meet their needs.

The establishment of specialized maintenance trades was not entirely successful. Relatively few trainees applied for courses in such trades, and industry had reacted with hesitation despite the fact that demands for national recognition of such trades had been initiated by representatives of industry. The average European trainee (15-16 years old or younger in his first year of training) was considered too young to specialize in maintenance work during the three to four year period of training for newly recognized qualifications as a skilled mechanic, fitter, electrician, or machinist.

With few exceptions the employers preferred the training of maintenance men be carried out in three phases: (a) training at school, in industry, or in the artisan trades to journeyman level as a mechanic or electrician, (b) practical experience as a trainee in a maintenance department under a system of planned rotation to different types of work designed to give him a full understanding of the production processes; and (c) courses of further training and updating to broaden the skill and knowledge acquired in the first two phases, including techniques of fault detection and training directed to breaking down the limitations of traditional borderlines between trades, e.g. training mechanics in electrical work and electronics.

Problems in recruitment of necessary skills connected with the changeover to automation occurred in the early 195[illegible]s and were solved mainly by organizing special training and retraining courses for employees. Long-term investments in training equipment and facilities were profitable

only to the larger employers who recruited many craftsmen each year. Adaptation of new recruits cause a problem only when the annual rate of recruitment exceeded 10 to 20 percent of the existing maintenance force; otherwise, the new men were successfully trained alongside experienced journeymen.

These observations appear valid for the chemical and food industries. The vocational schools had been turning out an increasing number of mechanics and electricians trained to journeyman standards in three of the countries; German industry had increased the number of journeyman mechanics trained in apprenticeship from 1950-59; since then the number of new apprentices had decreased in these trades. The number of electricians trained, on the other hand, had increased over the period 1959-65. In addition, the artisan trades in all four countries had been training more mechanics and electricians than they needed and many journeymen trained in artisan workshops had taken up work as mechanics or electricians in industrial areas.

From observations made in the European Coal and Steel Community iron and steel industries, it was evident that radical changes in the handling of materials and in production methods required substantial changes in the training action of the employers.

The results obtained in the present study would seem to show that the problem of recruiting and training maintenance men must be assessed specifically for each country, for each major branch of industry, and at frequent intervals, as the conditions which are at the root of such problems are in themselves rapidly changing in all the countries. But the nature of this change is not the same in all industries, nor are conditions similar in all countries.

TOPIC TWO: Out-of-school youths and adults

See Bibliography for information on availability of complete studies

"The Role of Technical Schools in Improving the Skills and Earning Capacity of Rural Manpower: A Case Study," by Svetozar Pejovich and William Sullivan, St. Mary's College, Winona, Minnesota. 1966.

The Manpower Development and Training Act of 1962 was an attempt to upgrade national manpower resources and alleviate unemployment. In many cases the MDTA programs have been administered through area technical schools. This report is an attempt to (a) calculate the private and social gains from investment in technical schools, and (b) spotlight the advantages to inadequately skilled labor in rural areas afforded by investment in retraining and skill development.

A series of statistical formulas were developed and tested on questionnaire data supplied by graduates and students of the Winona Area Technical School in Minnesota. Details of their methods, findings and conclusions are presented.

Formulas were developed to provide information in relation to the following:

1. The private costs of investment
2. The annual return on investment.
3. The private rate of return on the investment.
4. The social costs of investment.
5. The social returns on the investment.
6. The social rate of return on the investment.

Graduates and students who were presently enrolled in the school were utilized in the study. In the case of the enrolled students, the Minnesota State Employment Office was asked to estimate their expected average earnings. Returns were also computed for individual programs.

The authors conclude that an individual must place considerable weight on his own ability and situation and hope for the best. They also conclude that in the most profitable industries and during the most prosperous times, some individual investment decisions are bound to fail. It was reported that, for the most part, the school successfully performed at least two functions for its students. First, it has enabled inadequately skilled men and women to improve their earning power; secondly, the school may provide these men and women with a greater sense of purpose and accomplishment. The general conclusion was that the rate of return, both public and private, was equal to or greater than the use of the same resources elsewhere. It was significant that approximately 80 percent of the graduates remained in the area.

"The Identification of Common Behavioral Factors as Bases for Pre-entry Preparation of Workers for Gainful Employment," by Douglas Sjogren, Wayne Schroeder, and Robert Sahl, Colorado State University, Fort Collins, Colorado, University of Nebraska, Lincoln, Nebraska, 1967.

The basic assumption of this research study was that vocational curricula designed to teach skills, knowledge and understandings relevant to a number of jobs followed by specific training for a single job are more efficient and effective than vocational curricula designed to teach certain specific jobs. The central problem of this study was to determine whether behavioral factors might be identified which would serve as bases for the development of curricula designed to prepare persons for initial entry into the labor force at the semiskilled, skilled or technical levels of employment.

Methodology

The data were collected by interviewing job incumbents in the agricultural and metal working industries. A list of 84 occupations at the semiskilled, skilled and technical levels was developed, and five incumbents in each occupation were interviewed in Colorado and Nebraska. The interviewers were students and housewives who were given a three-day training program in interviewing principles. During the interview, interviewers had a copy of the instrument and the scale description; the incumbent had a copy of the scale description.

The incumbent would respond verbally to each item and also give a rating for each item; the interviewer would

compare the two responses, and if they were incompatible the interviewer and the incumbent would discuss it and attempt to reach an agreement on the appropriate rating; if they could not agree a final decision was made by the project director (there were few such cases). The complexity scale was post-coded by one person, a graduate student in industrial psychology, on the basis of the description of the behavior on the instrument.

Summary and Conclusions

The interview schedule contained several general work environment items, and clerical, physical activities, personal contact, and supervision-level checklists. The five major behavioral dimensions—physical, discrimination, intellectual, responsibility and decision-making, and communication behaviors—were characterized by 42 items. For example, under physical behavior one of the items measured was finger manipulation; under discrimination behavior, speed estimation; under intellectual behavior, math usage; under responsibility and decision making, ability to formulate policies and goals; and under communication behavior, persuasive communication. The analysis of the correlation matrix of the 47 agriculture occupations yielded three factors, or occupational clusters, which were characterized by high loadings of production agriculture, agricultural industry and agri-business occupations. Behaviors that characterized a cluster were identified from a tally made of the number of occupations in a cluster that scored above or below the mean of the occupations on each variable.

Using this procedure, the production agriculture cluster was characterized by an average or high level on almost all the behaviors, with the highest on intellectual, responsibility and decision-making behaviors. Highest scores for agricultural industry were machine operation behaviors. Occupations in the agri-business cluster generally scored at a high level on intellectual responsibility and decision-making and communicative behaviors, and low on physical and discriminative behaviors. There were also three factors in the metal working occupations—skilled worker, semiskilled worker and business clusters. Clusters for skilled and semiskilled workers were similar except that the skilled workers scored at a higher level. The highest scores were mostly on physical and discriminative behavior items; the scores were overall low when compared to other occupations. The business cluster scores were similar to those in the agri-business cluster.

Four general factors emerged from the total grouping—industrial worker, business, production agriculture, and technical or skilled clusters. The industry cluster occupations scored at a low average or low level on most of the items; the highest scores for this cluster were for physical and discriminative behaviors and those behaviors associated with knowledge of machines. The occupations in this cluster primarily were from the agriculture industry and semiskilled metal worker clusters. The business cluster was composed of occupations from the business factors previously identified; the scores here were highest on the communication, intellectual, and responsibility and decision-making behaviors. The production agriculture cluster was almost identical with the production agriculture cluster in the agricultural analysis; the highest scores were on the intellectual and responsibility and decision-making behaviors. The occupations in the skilled or technical worker cluster scored high on behaviors associated with the more independent types of work situations; there was a considerably higher level of scores on most behaviors than those in the industrial occupations; there were notably low scores, however, on some items such as policy making, knowledge of business procedures, and the communication behaviors.

A comparison of the clusters obtained by analysis of interview responses and those based on judgment indicated that in agriculture the clusters obtained from analysis of the instrument were different from those based on judgments of similarity by vocational agriculture teachers. The instrument yielded clusters based on job behaviors while it appeared the teachers were discriminating among the jobs on the basis of product knowledge. A comparison of the two methods in the metal working occupations indicated the clusters based on instrument analysis were similar to those based on judgments of similarity made by T&I teachers.

It was felt that the project returns offered some curricular implications. The occupational clusters identified were reasonable and the scoring patterns of the occupations suggested different emphases that could be provided for in a curriculum for the clusters. The results of the study did little to resolve the controversy in vocational education regarding the curriculum for agriculture-related occupations. There emerged two definite clusters of ag-related occupations which were distinct from the production agriculture cluster. The production agriculture cluster score pattern was such that a curriculum designed to provide comprehensive work would seemingly cover well the behaviors in the other clusters.

However, the ag industry and agri-business occupations exhibited more commonality with industrial and business occupations in the metal working industry than with the production agriculture occupations. There is more evidence needed on this question. The behaviors in this study didn't cover all the knowledge and understanding that might serve to cluster or differentiate occupations; the study results did suggest that a curriculum for training for placement in ag industry and agri-business occupations might well utilize a team teaching approach.

"Retraining Under the Manpower Development Training Act: A Study of Attributes of Trainees Associated With Successful Retraining," by Sigmund Nosow, Ph.D., School of Labor and Industrial Relations, Michigan State University, East Lansing, Mich. 1968.

These studies deal with some of the sociological, social-psychological and psychological characteristics of persons who have entered selected Manpower Development and Training programs in Michigan, and how these characteristics related to particular training outcomes. In order to maximize the returns from retraining, the crucial variables making for a successful program should be isolated so that one can predict with some probability of success which type of individual or group of individuals, and which type of

course or group of courses, will lead to maximum placement of retrainees in jobs for which they become qualified.

Methodology Used in the First Study

The first study was a two-stage panel study in which an initial interview was given to all trainees in the sample during the second week of training. This first interview schedule contained both structured and unstructured questions directed at obtaining the social and social-psychological attributes of the trainees. The criteria of success were program completion and the extent to which a trainee achieved successful labor market placement. All trainees (those who completed the program and those who dropped out) were interviewed three months after the completion of the program. The research group felt that training outcomes cannot be related to given theoretically crucial variables unless the training situation and the labor market in which the person is being trained are held constant.

In Michigan there were wide variations in approaches and structuring of programs which were a function of the setting, instructor and the type of course being offered. The programs are established in theory to meet a need on the part of local employers, but these needs often vanish with the vagaries of the economy—at no point in time is there uniformity in the demand for different classes of workers throughout the country. Because of the difficulty in measuring the quality of the program itself, the researchers used a design which held constant the quality of the program. The programs were representative of given industrial and occupational types—those which were being instituted most broadly around the country: auto mechanics and auto body repair programs—service industries and male occupations; machinists—skilled occupations in manufacturing; practical nurses, essentially a woman's program and of a higher white-collar type; clerk-steno, a skilled and essentially female occupation, and hospital aide-orderly, an unskilled and essentially female occupation in a service industry; computer training, a white-collar occupation at a potentially technical-professional level, essentially defined as a male occupation, was studied for data it might offer *vis-a-vis* the rest of the selected programs.

The study was restricted to programs located in four central cities of Michigan chosen randomly from the ten central cities of the standard metropolitan statistical areas in Michigan. Of the total population 14 years old and over in the labor force in 1960, 74.3 percent was found in these ten cities and of these almost half were in the four central cities; in 1960, 74.8 percent of all unemployed were in these ten cities and 43.0 percent of all the state's unemployed were in the central cities. In 1960, 93.2 percent of the non-white population was found in these ten cities, with 79.6 percent in the central cities. Of all MDTA projects approved for Michigan prior to 1964, approximately two-thirds were from the central cities. By its nature the sample made no attempt to be representative of particular types of courses or communities. Each community's programs represented a separate universe. The conclusions of the study are inferred as being valid for wider generalization, dependent upon general empirical knowledge about similarities with other types of universes.

The research data are based on a sample of 406 trainees found in 22 retraining courses representing seven different types of courses offered in the randomly selected sample of four standard metropolitan statistical areas in Michigan. No two of the cities had the same types of course offerings during this time period, although there was overlapping of course offerings among all four. Restrictions on entry into the training courses were generally based upon some of the aptitude measures in the General Aptitude Test Battery (GATB) with some educational, psychological and moral requirements on the licensed practical nurse courses; age was not a restriction (except for the special youth courses—one of the auto body and one of the machinist courses); education was not restrictive except in the practical nurse and computer program. Past experience in the labor force, amount of unemployment, marital status, number of dependents, geographic mobility, military service, or physical capabilities were apparently not considered as significant variables in the selection procedures, although the criteria applied was generally within the autonomy of the Michigan Employment Security Commission branch office for the area in which the program was established.

The types of courses defined the types of trainees found within them—male trainees in industrial courses and those for service employment traditionally representing male occupations; women trainees in courses such as practical nurse, nurse's aide and office occupations; computer training had primarily male enrollment. Those courses centered in areas with large Negro populations consisted of a larger number of Negro trainees than did those in the other communities. During the period in which the training courses were offered, the rates of unemployment for each of the labor markets were very low, varying from a mean unemployment figure of 3.0 percent to 5.6 percent. Under different labor market conditions the selective factors might lead to a slightly different composition of the trainee group as to social characteristics, abilities and motivations.

The main difference between this sample and the total trainees in institutional MDTA programs for the entire country for 1964 was in the ages and education of the trainees, the Michigan sample was substantially older and had a higher education level. The trainees were not considered characteristic of the entire labor force of Michigan nor were they considered representative of those workers in the various occupations for which they were being trained—they represented a group of workers unemployed or underemployed in a time of very tight labor market conditions. MDTA trainees for the most part had higher levels of education than the total hard core unemployed; many entered programs although they had employment currently available; they had an attitude of willingness to undertake retraining.

Summary of Findings in First Study

Retraining was successful for persons in the sample on both criteria measures—course completion and labor market outcomes: 72.7 percent eompleted training; 59.6 had

work related to the type of training for which they had been enrolled, and 21.9 percent had other types of employment. The study showed that persons trained for specific jobs who complete training get jobs when there is a demand in the market, and that most persons marginal to the labor force (the youth, aged, poorly educated, nonwhite, and female persons) lose this marginal character when they complete training. Persons who do not complete training retain their marginal character even in a tight labor market. For those who have completed training, factors such as higher education, young adulthood, maleness, and favored ethnic membership give no marked advantage in obtaining the specialized jobs for which retraining has been a preparation.

High dropout rates from the courses were largely a function of emergent job opportunities within the local labor market. The study was based on two broad postulates: (a) workers receiving retraining are better off than those who do not, and (b) workers will vary widely in their abilities to benefit from retraining and will manifest a wide range of training and labor market responses significantly associated with their psychological and social attributes. Two dynamic forces at work underlying retraining are (a) the strength of motivation and aspiration of trainees, and (b) impelling pull of the local labor market opportunities.

Training is of value to all types of persons irrespective of age, education, or past occupational, education or social backgrounds. The higher the education, the greater the opportunities, as manifested by the number of persons in non-training-related employment—but this was true only for white trainees; for nonwhite male trainees different levels of education made relatively little difference in outcomes. There were no differences among races in dropout rates. Comparisons among white trainees show no differences in rates of success between men and women; comparisons among nonwhite trainees show women to be significantly more successful than nonwhite men.

Data on job-changes during the three-month period following the completion of training suggest some short-run mobility patterns for all trainees—one apparently finds the interactive effects of training and normative system of the larger community as reflected in the labor market; while the women held but one job during this period, three-fifths of the males held two or more jobs during this time. The least mobile persons were in the 40 years and over and under 20 age groups. Retraining apparently provided opportunities not open to other non-white persons without successful course completion. Persons with high employment among their friends tended not to enter a retraining program. Past educational and occupational experiences have little influence on training completion successes, although there were some variations in outcomes, for particular program types.

Background education only seemed to make a difference for clerk-steno trainees; those with training were more successful than those without. Adults in the prime of life were not more successful in retraining than were other persons. Trainees with dependent children were not significantly more successful than other trainees. The dropout rates for single persons were not significantly higher than for married persons. Where universalistic criteria prevail, nonwhite trainees are more successful than are white trainees (hospital occupations in this case). Upwardly mobile persons, as judged by family backgrounds, were no more successful in retraining than were other persons. Extent of past unemployment had no influence on training outcomes. Among the most successful trainees were female heads of households, who were significantly more successful than were other groups.

Second Study Provided a Perspective

The second study, based on the original one, was undertaken to provide a type of perspective on retraining by comparing trainees and persons similar in basic social and personality characteristics not receiving retraining. The essential question was, "to what extent does Manpower Development and Training provide social, psychological and economic outcomes for trainees which are not available to persons similarly situated and similar in background who do not have the advantages of such training?"

A total sample of 302 male and female, white and nonwhite subjects (151 MDTA trainees and 151 matched controls) from the four central cities were studied. The control group consisted of individuals who had been accepted for the courses, but for certain reasons did not enter training (e.g., finding new employment, returning to employment from which they had been released, entering other training, family obligations). Matching was made on the basis of the following crucial personal variables: labor market location, interest in the same program, sex, ethnicity, age, education, marital status, GATB scores. There were 151 pairs of initial interviews; due to difficulty in locating many individuals, there were 134 post-training pairs of interviews.

Significant differences emerged between persons who entered MDTA training and those who did not. In job satisfaction and occupational level the trainees had significantly higher results; trainees did not differ from controls in amounts of employment or in wages. However, when trainees who completed the courses are compared to their controls the differences between the total groups become clearer. The successful trainee has higher occupational status and more job satisfaction than his counterpart among the controls; the successful trainee also has lower wages than his counterpart among the controls. There are few differences between unsuccessful trainees and their controls. (Dropping out is perhaps less a function of ability, especially for males, than of the pull of the labor market.)

Research Visibility since September 1967, is indebted to the efforts of C. Thomas Olivo, Temple University, and Gordon F. Law, Rutgers University, for 11 issues. Responsibility for preparation of this section has now been assumed by George L. Brandon, professor in residence (Pennsylvania State University) and Research Assistants Gary D. Thomas and Anne Ware.

"Guidelines for Hospitality Education in Junior Colleges: A Manual for the Establishment of Programs for Careers in the Hotel-Motel, Restaurant, and Institutional Industries," by Richard L. Almarode, American Association of Junior Colleges, Washington, D.C. 1967.

These guidelines provide advice for the establishment of hotel-motel, restaurant, and institutional educational programs. It has been estimated that each year until 1977 an additional 250,000 new workers will be needed in the food service industry. The hospitality industry is undergoing a major transition period, evidenced by the growth of expressway and downtown motor hotels replacing downtown hotels and roadside tourist courts. The convention and group business market has been expanding; air transportation and rapidly expanding interstate systems have created a demand for many new public hospitality accommodations; institutional housing for students, aged, convalescents, retired persons have increased; and the potential hospitality market has hardly been tapped. All areas of the hospitality industry need qualified and trained employees.

At the community college the program of instruction should be a flexible one that meets the needs of the students, as well as the needs of the hospitality industry in the community. It should contain the following student objectives: (a) the acquisition of competencies which will enable students to enter into the hospitality industry; (b) provisions for skills, including on-the-job experience, for entry to supervisory type jobs; (c) instruction that will enable them to advance to higher positions through improved skills, attitudes and information; and (d) the college should also offer community service programs of enrichment and inspiration to all areas of employed personnel in the hospitality industry, specifically patterned to meet the day-to-day needs of the industry and community.

The community junior college should survey the industry to obtain the following information: employment statistics of the area, knowledge of job opportunities for graduates, opportunities for cooperative work experience, identification of part-time teachers, guest lecturers; identification of potential members of an industry advisory committee; an indication of the number of potential part-time or full-time students already employed in the industry who need or desire additional occupational education; and identification of curriculum needs. This survey should be comprehensive, including not only trade associations but several industry members and agencies of the state government.

The industry advisory committee is recognized by the U.S. Office of Education, the American Vocational Association, the American Association of Junior Colleges, and state departments of education as being essential to an efficient and effective occupational education program. Selection and operation of such a committee is described in this guide, with an emphasis on close coordination with the community college.

Since selection of the department head or director of the program is a determinant of the ultimate growth, development and success of the program, he should have a part in as much of the organization of the program as possible. He should be selected as soon as possible, keeping the following suggested qualifications in mind: possession of a bachelor's degree in hotel-motel, restaurant and institutional field with a master's or equivalent preferred; occupational experience in the industry; desirable personal traits. The faculty must be competent in their subject areas.

Suggested Curriculum Patterns

This guide deals with degree programs, certificate programs, continuing education programs, and community service programs. The certificate program may be considered to fill a need of the industry for specialized training—it is a combination of credit courses requiring less than two years for their completion, focusing on a limited range of skills and training for specific parts of the industry; a certificate of competency is usually awarded upon completion of the program. Some areas of the industry that should be considered in this area are sales promotion, baking, specialized cooking, data processing, purchasing, and fast-food merchandising. The program should be open-minded, allowing the student to continue his education. A sample of a 37½ unit certificate program is printed at bottom of this page.

Facilities Planning

Space and facility planning should parallel curriculum planning; if cooperative work experience is used classroom facilities would be at a minimum. However, if the junior college is used for laboratory experience special consideration should be given in the initial developing stages to space and facilities. Some colleges have converted a classroom into a typical motel or hotel front office, and a few have even successfully operated a college motel, hotel or food service operation. Opponents of this approach to

BAKING

Major Courses		*Related Courses*	
		Health education	1
Baking: hotel, restaurant, and retail	9		1
Baking: hotel, restaurant, and retail laboratory	18	*Other Courses*	
Sanitation	1	Physical Education	1½
Introduction to food preparation and services	2	Electives	5
	30		6½

training say that more emphasis is on the physical operation of the training facility than on the training itself.

In planning a food production laboratory, if space requirements are kept in mind, this can be combined with the college cafeteria or food service department. Some newer schools have demonstration auditoriums with tiered seats and a demonstration area in the center with built-in sink and other mobile equipment. It is also recommended that a soundproof study or classroom be provided near the kitchen with an open window for viewing purposes, with library of reference materials; an instructor's office should also be nearby. All the related trade journals should be available.

The community college administrator considering such an occupational program should remember that the instructional costs in these programs are higher than in general education programs. A primary source of funds is the State Department of Education, Division of Vocational Education. Since the passage of the Vocational Education Act of 1963, some states have expanded their high school occupation, vocational and technical program to the community college level and this is a primary source of cooperative funding of occupational programs utilizing federal, state, and local education appropriations. The program may involve funds administered through the divisions of home economics education, trade and industry education, and distributive education. There is Federal legislation that provides training support, technical assistance, experimental demonstration research; funds for all three should be investigated. Private sources for funds are also available—trade associations, equipment manufacturers, food suppliers. Many regional and national chain and franchise organizations in the lodging and feeding industries make student scholarships available.

Program Evaluation

The community college administration must provide for continuous evaluation of the operation and development of the hospitality education program. The following points should be considered in making the evaluation:

1. The quality of the program in terms of occupational ability, skills, knowledge, and understanding of facts basic to the work to be done.
2. Availability of the program to all who have shown an interest in it.
3. The adequacy of course offerings in the hospitality industry.
4. The extent to which the program provides for student needs.
5. The effectiveness of the teaching methods.
6. The efficiency of learning either through the laboratory or on-the-job and classroom instruction.
7. The accuracy of follow-up records of all graduates.

"Guidelines for Law Enforcement Education Programs in Community and Junior Colleges," by Thompson S. Crockett and James D. Stinchomb, American Association of Junior Colleges, Washington, D.C. 1968.

This publication was developed for community or junior colleges planning or engaged in the development of occupational education curriculums in the law enforcement field. It describes some of the different types of programs that might be offered, as well as presenting the case for offering such programs in the community college.

Quoting from the report of the President's Commission on Law Enforcement and Administration of Justice and statements of the International Association of Chiefs of Police, the authors document the need for law enforcement education. The particular needs and resources of the area would determine what type of program would be offered, but it would probably include one or more of the following:

1. Development of sound associate degree programs designed to meet the long-range career needs of the police profession.
2. Identification of more limited one-year certificate programs for in-service police personnel with shorter range educational goals.
3. Provision of opportunities for in-service officers to take one or more professional courses to meet specific job objectives such as promotion or work-related background knowledge.
4. Offering of in-service training courses to provide job skills and information.
5. Coordination of regional basic or recruit training programs for the development of competencies in personnel which will enable them to function at the entry level in law enforcement agencies.

The guidelines stress the value of an advisory council, both in devising relevant programs to meet local needs and in the recruitment and placement of students. Information is given on the recruitment and selection of staff, design of a curriculum, and the preparation of facilities. A case is also made for the cadet program, a work-study arrangement where the student is given relevant work experience in coordination with his studies. Most law enforcement programs do not provide work experience as a part of the formal educational process. Usually, the student obtains employment as a clerk, typist or other civilian employment with the local police agency, but the work experience is rarely evaluated and bears little resemblance to the carefully supervised and evaluated internship periods associated with other occupational programs.

A list of resources for assistance in program development is given as well as some tips on program evaluation. Institutions offering police science degree programs are listed, as well as sources of elementary crime laboratory information, supplies and equipment.

"Effects of Field and Job-Oriented Technical Retraining on Manpower Utilization of the Unemployed," by David C. Bjorquist, The Pennsylvania State University, University Park, Pennsylvania. 1968.

This research compared two programs of preparation of technicians in mechanical technology. A *job-oriented* program emphasizing application to the specific occupation of tool design was compared with a *field-oriented* program intended to give broad basic preparation for a variety of

jobs in the field of mechanical technology. Both programs were conducted under the Manpower Development and Training Act.

Students were selected from throughout Pennsylvania by the State Employment Service which identified and initially screened each applicant. The research staff, with the cooperation of the training agencies and the employment service, developed the criteria for selection: (a) eligibility under MDTA, (b) high school graduation or equivalency, (c) familiarity with mechanics and machine operation, and (d) expressed desires to be retrained as technicians. Tests selected from the General Aptitude Test Battery were used to measure intelligence, numerical and spatial aptitudes; final selection was made by the research staff. Students were not assigned randomly to training programs, but were assigned on the basis of their personal preference for training location, 35 to the job-oriented and 40 to the field-oriented program.

The two training groups were very similar in aptitudes, years of previous education and age. With a mean of 100 and standard deviation of 20, the GATB scores for intelligence(G), numerical(N) and spatial(S) aptitudes were near one standard deviation above the means on all three measures. Approximately one-third of the students in each program had completed some education beyond high school. About one-third were teenagers at the beginning of the training. The oldest man in training was 47 and the youngest was 18.

"Tool Design Technology"

The job-oriented program was titled "Tool Design Technology." Facilities used were those of a vocational-technical school, with a program similar in many respects to the thirteenth and fourteenth years of a vocational-technical program. This curriculum was prepared with the advisement of an industrial committee in tool design. The field-oriented program, "Machine and Tool Design Technology," was offered on a two-year campus of The Pennsylvania State University, and was prepared primarily by the engineering faculty of the University, with the advice of practicing professional engineers. Each program was approximately 52 weeks in length.

Approximately one-half of the course work in each training program was in drafting and design. Other course work was in mathematics, physics and applied physics, communications, manufacturing processes and production problems. In the job-oriented program, courses other than tool design were considered to be supportive of the tool design instruction. Courses in the field-oriented program were taught more as individual subjects.

There were three dropouts from the job-oriented program and two additional students designated as drafting rather than design students. Fifteen students dropped out from the field-oriented program. Twelve of these were dropped for academic failure.

From pretraining testing to post-testing, job-oriented students showed significant gains in mathematics and mechanical comprehension. Field-oriented students made significant gains in mathematics and spatial relations. There were significant changes in the vocational interests and the social class identification of students during the period of training.

Several psychological and biographical variables were correlated with grade point average. In the job-oriented program two measures of spatial ability and a measure of mathematical ability were the best correlates. Measures of mathematical ability and mechanical comprehension correlated best in the field-oriented program.

Students generally expressed favorable attitudes toward the training they were receiving. Most students in both programs expressed their desire to work toward jobs related to their training, but more technical or with more responsibility.

Following training, data were gathered by means of interviews conducted six months, one year and two years after the completion of training.

Although many graduates reported to work immediately after training, it required an average of almost four weeks for them to begin their first job. The time required by industry for the screening and selection of individuals they hired for technical positions was often two or more weeks.

Two years after the completion of training, 28 job-oriented design graduates and 17 field-oriented graduates were employed in industry. Two job-oriented and four field-oriented graduates were in military service. There were no data for three field-oriented graduates; one field-oriented graduate was unemployed.

During each interview a job analysis was conducted to determine the job skills and work field of the graduates. The analysis technique used was one structured by the United States Bureau of Employment Security and used in the preparation of the 1965 edition of the *Dictionary of Occupational Titles*. A key focus of this type of analysis is the determination of the level at which the job requires the employee to deal with data, people, and things. In general, a hierarchy has been established in each of these three areas in which a lower code number identifies a higher level of involvement required by the job.

No Significant Differences Found

Two years after graduation 24 job-oriented and 15 field-oriented graduates were employed in the work fields of drafting and engineering. Others were employed in the work fields of researching (1), appraising (2), administering (1) and machining (2).

There were no significant differences between groups of graduates in the level of their involvement with data, people and things. There was some increase in the level of responsibility for graduates during the second year after completing training.

Ninety-three percent of the job-oriented and all of the field-oriented graduates were using some drafting skill. Three-fourths or more of the graduates of both programs were using freehand lettering, sketching, orthographic drawing, sectioning, dimensioning, and scale drawing skills.

One-half or more of the job-oriented graduates were designing tools, layouts and templates. The same was true of field-oriented graduates in designing fixtures, jigs, tools,

layout, and gauges. Ninety percent of the job-oriented and 81 percent of the field-oriented graduates were doing some designing two years after graduation.

All graduates of both programs were using some mathematics skills. Most frequently used were arithmetic, algebra, right triangle trigonometry, and plane geometry.

There were no significant differences between training groups in the satisfaction they derived from the supervision, promotion, work, pay, and people aspects of their jobs two years after graduation.

During the first year after graduation, 12 job-oriented and 13 field-oriented graduates, employed in industry, made geographic moves. During the second year, seven graduates of the two programs moved. Mobile graduates were significantly younger than immobile graduates. Mobile field-oriented graduates had significantly higher starting salaries than job-oriented graduates who moved. Immobile job-oriented graduates had significantly higher starting salaries than immobile field-oriented graduates.

Average weekly salaries for field-oriented graduates were higher than for job-oriented graduates at each of the three interviews. Two years after the completion of training, weekly salaries of graduates tended to be somewhat lower than those reported for Class B Draftsmen in metropolitan areas. Job-oriented graduates earned $120.02 per week and field-oriented graduates earned $133.20 per week two years after graduation.

Feedback From Graduates

Graduates were rated on occupational technology, manipulative work, personal and social qualities, and work qualities and habits by their employers. Most graduates of both programs were rated above average or outstanding in all but occupational technology, where they tended to be rated average.

Graduates of each program reported the utility of training courses in the jobs they held. In both programs, courses in drafting, mechanics and mathematics were rated as of much value. The machine shop and communications courses in the job-oriented program were also considered to have much value. In the field-oriented program other courses of much value were tool and die design, product design and industrial processes. As perceived by graduates of the two programs, the value of all but five courses in the two programs increased during the second year on the job.

The social class identification scale which had been administered before and after training, was used again two years after graduation. Scores for graduates of both programs had decreased during the two years after training and were not significantly different from scores before training.

Significant gains were made by both training groups, as measured by standardized tests. However, it was concluded that the students of lesser ability achieved more in the job-oriented program than they did in the field-oriented program. Predictors of success in training were different for each program and should be developed by institutions offering technical programs.

Graduates of the programs were employable as technicians after a relatively short intensive period of training. Shortened training periods for the preparation of technicians should be considered in fields with high demand for workers.

Although the curricular content of the two training programs appeared similar, there were differences in the execution of the programs. These differences seemed to result from the more specifically defined occupational objective of the job-oriented program as opposed to the rather general occupational objective of the field-oriented program.

The job-oriented program produced more graduates, in part, because it was more flexible. Students whose training performance did not measure up in every respect were allowed to continue training. Despite this flexible standard, the on-the-job performance level of the job-oriented graduates was comparable to that of the field-oriented graduates.

Credit for Training Recommended

It was recommended that credit be given for training in similar programs. This would have been helpful to students, several of whom aspired to jobs which might require additional preparation.

The training situation in the job-oriented program bore greater similarity to the employment situation than did the field-oriented program. When the similarity of training and work are greater the transition to the job after training should be easier.

There were difficulties in the placement process of graduates of the training programs. Lines of communication between these technical programs and the employers of technicians did not appear to be well developed. Effort should be expended in seeking out prospective employers and informing them of the availability of graduates.

The follow-up procedures used in this study could be further refined to produce more specific information for curriculum and evaluation purposes. Job titles held by graduates would not have provided accurate indicators of job responsibilities. Follow-up data should be accurate and additional work on the methodology of gathering these data is needed.

"Selected Characteristics, Socioeconomic Status, and Levels of Attainment of Students in Public Junior College Occupation-Centered Education" by John W. Hakanson, University of California, Berkeley. 1967.

The objectives of this study are: (a) To describe and compare those students completing a two-year occupation-centered curriculum with those enrolling, but not completing the curriculum, in terms of socioeconomic status, scholastic aptitude, course of study followed in high school, and sex; to determine if the relationship between low socioeconomic status and low educational attainment remains firm when completion of a two-year occupation-centered curriculum in a public junior college is the criterion of achievement; (b) to compare students enrolling in such a curriculum directly from high school with those who

initially enroll in a college credit transfer program and then later change over to such a curriculum; (c) to observe variations in shifting from a college transfer curriculum to the occupation-centered curriculum according to levels of socioeconomic status; and (d) to compare the socioeconomic status of public junior college students in occupation-centered curricula with whether or not they complete the curricula.

Methodology Employed in Study

Data obtained from the "High School Graduate Study" of Medsker and Trent are used in this study; those data include general intellectual, psychological and social characteristics of approximately 10,000 high school graduates and factors influencing attendance and persistence in college. The six institutions observed in the research for the subject study are broadly representative of public junior colleges in California and the Midwest. Data used are those pertaining to a basic group of 1,011 students whose first full-time enrollment in post-secondary education was in the fall of 1959, and whose educational progress was followed for four years. Data relating to the personal and social characteristics and educational background of the students were collected by questionnaire in 1959; further data were obtained from records of performance and retention in post-secondary education and employment. (Transcripts are available on those of the original 10,000 who attended a post-secondary institution listed in the *Education Directory* of the U.S. Office of Education.)

The following specific terminology is defined by the author: "Two-year occupation-centered curricula or terminal programs) are programs for two years or four semesters whose objective is the preparation of the students for definite occupations." "Completion of a two year occupation-centered curriculum" means that the student has either received an A.A. degree or Certificate of Completion or earned 59 or more semester hours of credit (with a substantial portion being part of a two-year occupation-centered curriculum).

Determination of Socioeconomic Status

Socioeconomic status was determined by father's occupation, the occupations being broadly categorized at three levels (High, Middle, and Low) implying educational skill and responsibility differences. Scholastic aptitude was measured by direct or converted scores on the Scholastic Aptitude Test (SCAT). Means and ranges were computed from scores earned by the 1,011 students in the basic group; determination of High, Medium, and Low categories of students was obtained in the original 10,000 group of students. Three basic high school programs were used in classifying the students: (a) Occupational–vocationally oriented program in agriculture, industrial arts, business, commercial, secretarial, (b) general, (c) college preparatory.

Three subgroups were identified: (a) Students who had initially enrolled in a curriculum intended for later transfer to a four-year college, including some who later changed to a terminal curriculum; (b) students who had enrolled directly in a terminal program from high school and did not transfer to another program, omitting students who had initially enrolled in the two-year occupation-centered curricula who subsequently changed to transfer curricula; and (c) students from subgroups (1) and (2) who, after four years, had either completed or not completed the two-year occupation-centered curricula.

Summary of Results

The first objective of this study being to describe the students in terms of specific characteristics, the basic method of analysis used was to make a series of comparisons of groups of students, each in terms of one of a number of selected variables testing each comparison for significance; the analysis took the form of testing a specific variation of the general null hypothesis that there were no significant differences between the groups being compared.

There was a total of 319 students from the basic study group which spent some time in the occupation-centered curricula during the period covered by Hakanson. Of the terminal students, 90 percent were from middle and low socioeconomic status homes; women of middle socioeconomic status and men of low socioeconomic status were "over-represented" as compared to their peers among graduating high school seniors. These students earned medium and low scholastic aptitude test scores in the medium range; women of medium scholastic aptitude and men of low scholastic aptitude were over-represented as compared to their peers. Terminal students had taken occupational courses of study in secondary school in greater proportion than their colleagues, and this tendency was stronger for women than men.

Forty percent of the terminal students completed the occupation-centered curriculum. Analysis revealed that within the medium scholastic aptitude category those students with middle socioeconomic status were more likely to complete the curriculum than those with high or low socioeconomic status. Because only one out of every seven who dropped out of a college credit transfer program ever shifted to the occupation-centered program, analysis was limited in this part of the study. Hakanson found no conclusive relationship between the socioeconomic status of a student and enrollment in a terminal program. No difference in scholastic aptitude was shown to exist between those students who enrolled in the curriculum directly from high school and those who enrolled in it after trying a college credit transfer program. The data indicated, especially for women, a strong relationship between taking an occupational course in secondary school and enrolling directly from high school in a terminal program.

Conclusions and Recommendations

Since Hakanson's study infers that low and, especially, middle socioeconomic status students are more likely than high socioeconomic status students to complete the occupation-centered curricula, he suggests that major research be conducted to identify elements of "socioeconomic status" which appear to have a definite relationship with whether or not a student finishes a given educational program. Re-

search is also indicated to determine if, as this study infers, there are different relationships between socioeconomic status and completion of an occupation-centered curriculum for students above, or below, a specific level of scholastic aptitude. Knowledge of such factors might lessen the reliance upon grades and scholastic aptitude test scores; of educational programs with greater understanding of the relationships between socioeconomic status and achievement in different educational programs, direction could be given to a reasoned restructuring of education with greater emphasis on occupation-centered education.

Hakanson observed that, since only 14 percent of those students withdrawing from a college credit transfer program subsequently enrolled in an occupation-centered curriculum during the period covered in the study, the junior college may fail to meet society's need for technicians unless it can (a) attract more high school graduates directly into the occupation-centered curricula, or (b) get the academic program dropouts to switch to terminal programs rather than withdraw from school. Also, he remarked that unless the junior college can guide its students in courses of study in which they will be successful, the community may well blame the institution for the failure of the students, thus possibly posing grave problems for those which depend upon the community for revenue.

The junior college counseling effort should be focused on male students with medium scholastic aptitude and middle-socioeconomic status, as this study has inferred that such students are likely to complete the occupation-centered curriculum once entered in it.

Hakanson also infers that if high schools would offer more occupational courses, especially those appropriate for boys, and give more effective educational guidance, larger numbers of young men might pursue these courses in high school and subsequently more might enroll directly and complete the terminal curricula in public junior colleges.

Hakanson concluded: "Verification of the likelihood that under certain circumstances this relationship (between socioeconomic status and level of attainment in education) will vary with the kind of education undertaken by the individual constitutes a refinement of the general theory that the lower the socioeconomic status of the individual the more likely it is that his educational attainments will also be low."

PLAIN TALK

THE OVERRIDING PURPOSE of *Research Visibility* is very simple—the straight-forward reporting and communication of the results of research, study, institutes and demonstrations to our consumers in the professional field of vocational and technical education. The current word for the process is "dissemination." Obviously, one of our most severe limitations of dissemination in RV is our confinement to the medium of the printed page. It is interesting to speculate upon the many benefits which could accrue to vocational and technical education if we could utilize numerous media of dissemination to make "plain talk" about research and development zero-in on our many problems.

Surely, the oft-quoted "one picture is worth a thousand words," has a lesson for us to learn in research reporting and dissemination. Somehow our investigators, researchers and scholars of the research and study process have not taken very seriously the challenge of provoking real learning through the dissemination of research reports which employ other than the traditional paper-and-ink medium. Historically, at least before the advent of heavy research funding, graduate study and research usually found its way to the graceful repose of library shelves until disturbed by another researcher or student of investigation. How much of our contemporary research and study is destined for a similar morgue of disuse?

"Slack-Time" and Use of Research Results

Current devotees of the PERT (Performance Evaluation and Review Technique) System are very familiar with *slack time*. The term indicates a place or places in research or in the conduct of a program in which progress is *behind* schedule (negative slack time) or *ahead* of schedule (positive slack time). The *slack time* idea, particularly the negative variety, should be of great concern to all of our personnel whether engaged in the conduct of research, teaching a course, erecting a new vocational facility, or engaged in any enterprise which would be characterized by efficiency and good organization to accomplish results. Particularly to researchers and to those who are dependent upon previous or on-going research or new knowledge from other researchers, negative slack time is costly—sometimes embarrassing and disastrous.

It is the purpose of most modern information retrieval and documentation systems to eliminate particularly the negative slack time caused by some very natural and important questions: What has been already found out about the subject under investigation? Who are the chief investigators of a similar interest? What related studies have been made? What conclusions and recommendations have come out of previous study? Are there similar studies in other fields (other disciplines), agencies (departments of the government), business and industry? Specifically, *where* (from what source(s)), at what cost, and what length of time is needed to obtain reports and materials?

Research Visibility as a dissemination project has a vested interest in slack time of the nature described above in addition to providing JOURNAL readers with the latest information which is possible to procure. Moreover, it is concerned with the timely availability of research and development reports and the lag which sometimes exists between the time of investigator reporting and access to

the report by *RV* staff and personnel in the field. Reduced to their most simple terms, the problems of access and retrieval in the midst of the explosion of knowledge in which we find ourselves, despite all of the devices (documentation centers, information systems, etc.) which are presently available, is a spirit of "bird-dogging" of critical value to all of us.

RV will continue to commit this spirit to its reporting as a major purpose of its operation. In addition to the concentrated use and helpful cooperation of the ERIC Clearinghouse in vocational and technical education at Ohio State University, *RV* will initiate and maintain strong contact with other documentation centers in government and elsewhere. In this connection the attention of JOURNAL readership is invited to the fine print at the end of the *RV* section for other sources of information. Subject to space limitations and the availability of descriptions of the documentation centers, *RV* will report, from time to time, any new progress in this direction.

. . . *and Don't Forget Evaluation*

If there is a theme and persistent thread to new and impending professional needs and legislation, it is *evaluation*. This fact does not mean the use of new quickie devices for the total appraisal process in connection with the *quantity* and *quality* aspects of vocational programs at all levels. It is the overall task of all professionals and affiliates of the program. As Federal funding approaches the three-quarter billion dollar figure, the assessment, justification, and documentation of on-going programs and new needs will be demanded by members of Congress. Historic attempts at appraisal of the total vocational program have lacked the evidence of objectivity which is now required. The correction and alleviation of the evaluation problem is solely a task for the profession itself in disciplining its efforts to achieve the quality and quantity which it demands for its benefactors.

Advisory councils on the state and national levels will be confronted with obligations to assess vocational and technical education programs of their affiliations. This fact is crystal clear in the design, spirit and letter of the new legislation. It is also not by accident that contemporary vocational education legislation means to make the evaluation commitment stick as it provides funds for the *operation* of national and state advisory councils to, among many designated functions, conduct program appraisals and make duplication studies. Admittedly, the requirement is long overdue, and partially at least, it may be the reaction of Congress as a suggestion to the profession to police its own ranks. The evident process of gradual deterioration and thinning of ranks of professional vocational educators in the U.S. Office of Education is not without its relationship to the new challenge as we are reminded of the historic purposes of USOE and its establishment.

The American Vocational Association as the total professional organization of vocational educators has accepted its role as the vehicle through which the profession can move and become effective. This fact does not mean that the AVA is the evaluator or the "accreditor." It does mean that the professional organization can muster the personnel from the field with competency to concentrate on the formulation of desirable and realistic standards and criteria with vitality. Field experts from the many ranks of vocational and technical education can establish both the benchmarks of quality programs at all levels and a workable process which will enable the criteria to be moved through the assessment operation. At best, the evaluation process in vocational and technical education is a tremendously complex problem as it should take place in connection with programs which make up the wide scope of the total program. Optimistically, vocational education professionals are up to the task. Their leadership will not be found lacking.

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CFSTI—Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. Copies of reports with this symbol may be purchased for $3 each (paper) or 65 cents (microfiche). Send remittance with order directly to the Clearinghouse and specify the accession number (AD or PB plus a 6-digit number) given in the listing.

ERIC—Educational Resources Information Center, EDRS, c/o NCR Co., 4936 Fairmont Ave., Bethesda, Maryland 20014. Copies are priced according to the number of pages. The MF price in the listing is for microfiche; the HC price is for paper copies. Send remittance with order directly to ERIC-EDRS and specify the accession number (ED plus a 6-digit number) given in the listing. *How to Use ERIC*, a recent brochure prepared by the Office of Education, is available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402; the catalog number is FS 5.212.12037; price: 20 cents.

GPO—Government Printing Office. Send orders directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, with remittance for specified amount.

MA—Manpower Administration. Single copies free upon request to U.S. Department of Labor, Manpower Administration, Associate Manpower Administrator, Washington, D. C. 20210

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RESEARCH VISIBILITY

Synthesis / Application / Dissemination

Human Resources and Vocational Guidance Services

VOCATIONAL EDUCATION IS OPPORTUNITY. "Shock" statistics are not easily sidestepped in introducing this *Research Visibility* report: "Eight out of 10 school dropouts have never had counseling by school or employment office officials about training or employment opportunities. . . . Four out of 10 high school graduates have never had such counseling. . . . There are no school counselors at all in 13 percent of the Nation's secondary schools and in 90 percent of its elementary schools. . . . Only Massachusetts and the Virgin Islands meet the Office of Education's basic standard—one counselor for every 300 students." In terms of supervised work experience while in school, "shock" statistics are more startling: "Only seven percent of high school graduates and three percent of dropouts (among out-of-school youth in 1963) had such work experience." These data, reported by the Bureau of the Census and the U.S. Department of Labor, introduce a sad commentary to the primacy of the individual and the concern for human resources of the April 1968 *Manpower Report of the President.*

Six years ago, President Kennedy's Panel of Vocational Education Consultants reported, "Federal vocational education funds devoted to guidance and counseling amounted to approximately 10 cents per student enrolled in the year 1960-61."

The term "human resources" has many definitions. Too often in the present affluent society the accent is placed on the "resources" rather than the "human." Benefactors of the vocational and technical program—the students who complete programs of instruction—are considered to be *economic* plus values, assets to the nation's well being and productivity, and a real boost to the gross national product. As important as the economic concern may be to the *demand* aspect of national manpower, vocational educators who are concerned with the *supply* should have more human purposes. *Research Visibility* of the past has advocated vocational education as *people, service* and *opportunity*. These broad purposes should have their focus in human resources and the provisions which are made for their continuing welfare and participation in the world of work and consequently to a more effective, democratic society.

The 1968 *General Report* of the Advisory Council on Vocational Education in highlighting imperative educational needs sheds considerable clarification on the concern for human rseources. "Less emphasis must be placed on manpower as an economic resource and more on employment as a source of income and status for workers and their families. . . . Career consciousness must be integrated thoughout the schools in order to enlarge the number of

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EDITOR'S NOTE

Research Visibility is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The *Research Visibility* report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-070633, project 7-0633; "Synthesis and Application of Research Fundings in Vocational Education").

George L. Brandon, professor in residence (Pennsylvania State University) is editor of *Research Visibility*. He is assisted in the preparation of these reports by Research Assistant Anne Ware.

options and alternatives for individual pupils—both in terms of occupations and higher education. . . . The study of the world of work is a valid part of education for all children—it documents for youth the necessity of education both academic and vocational."

This report of *Research Visibility* is evidence of a continuing interest in vocational guidance. Considerable attention to the topic was devoted in the *RV* report of March 1968, in which Editor Gordon Law gave specific coverage to systems technology, career development theory and practice, counselor training, regional resources, and experimental and developmental studies Treatment now is concentrated on career development, selection, placement, and follow-up, and occupational trends. Undoubtedly in connection with a forthcoming *RV* report concerned with the preparation of professional personnel, the preparation of counselors will again be given some attention. This month some of the research and development activities of Super, Krumboltz, Briggs, Ryan and others will be reflected in *career development;* London, Haines and Garbin show their expertise in studies of *placement and follow-up,* topics of historical interest and persistent value to vocational educators; Medvin and Fishman advance the state-of-the-art in their studies of *occupational trends.*

There are few aspects of vocational and technical education in which all educators can find common cause and motivating concern as there is in the theme of vocational education as opportunity *through* the provision of vocational guidance. The common cause is much more than an academic meeting place. If vocational education, as it is claimed by the *General Report* of the Advisory Council on Vocational Education, ". . . looks at a man as a part of society and as an individual, and never before has attention to the individual as a person been so imperative," it is important that strong, professional commitments be made for *functional* guidance. Unfortunately, in the past, and possibly with justification, vocational educators have been caught up in the guidance controversy and its relationship to the futile general *versus* vocational argument. Sadly, the team concept has been missing as it apparently is at the moment with few studies to report the interest. Commendations are richly deserved by those good teachers who, through continued interest in the welfare of their students, have achieved many stated goals of the guidance process oblivious to both the academic argument and the specialized talent and training of guidance and counselor personnel.

Realistically, the problem of guidance—building bridges between school and work—is almost everyone's job. At least, it "involves many fundamental elements in American life in addition to educational preparation."

Some young people get help from teachers; some get help from school counselors, especially, "if they are college material" and will therefore cross into the work world with greater ease at a later point. Many are placed by the Employment Service system. Others get help from social workers, police, neighborhood centers, youth programs, or individual employers to whom they apply. Personal contact (through acquaintances, friends, and relatives), which has always been a strong feature of the job market in this country, is one of the most frequent ways of finding jobs.

Parents play an important part in the process of transition (though perhaps less so today than in past years when children were more likely to follow in their parents' occupational footsteps). They are important not only in terms of their influence on the child's preparation for life, but also in terms of the contacts and associations they can open up in the bridge-crossing process. Their contributions in this latter respect are necessarily limited when they themselves have been denied opportunity, through outright discrimination or adverse educational or economic circumstances. —*Manpower Report of the President* April 1968. pp. 112-114.

There are many criteria to assess the values of a guidance program, but two are recognized as especially viable: vocational choices should be based on an individual's understanding of himself and his surroundings, and an individual's choice (if it is a rational one) will strongly take into account his or her probability of success.

TOPIC ONE: Career Development

See Bibliography for information on availability of complete studies

Floundering and Trial After High School, by Donald E. Super, et al. Columbia University, New York, N. Y. 1967.

This fourth monograph in the 10-year longitudinal Career Pattern Study series is a 10-year follow-up study dealing with the transition years from school to college and to work. The specific purpose of the study is the description of the careers of 200 junior-high school boys and the analysis of the possible determinants of their careers. Vocational development is described in terms of problems and solutions, alternatives faced and behavior (floundering, trial, instrumentation, establishment, and stagnation) in coping with alternatives (educational, vocational or military positions to be occupied). The authors suggest that behavior can be revealed by the relationships of (a) positions sequentially occupied, and (b) characteristics of the subject to those of the position. The main issues discussed in this study are (a) floundering and stabilizing after high school, (b) characteristics of success in the early twenties, and (c) validity of vocational maturity scores as predictors of young adult vocational behavior.

In 1951-52, two samples were drawn of the eighth and ninth grade boys in Middletown, New York, public schools. The boys and their parents were interviewed, and the boys were given questionnaires and tests in the first year. Middeltown employment was surveyed. The subjects were followed up periodically (1955-56, 1958-59, and 1962-63, when they were approximately 25 years old). Complete data for all levels were available for 191 of the original subjects. Predictor variables were standard measures of intelligence, parental occupational level, school achievement and participation, community participation, peer acceptance, level of vocational aspiration, and several measures to assess vocational maturity, or readiness for vocational planning.

Criterion variables were measures of career and occupational success or satisfaction, including floundering, trial, instrumentation and establishment, and various measures of career development and occupational status up to or at age 25. *A priori* hypotheses were tested on one twelfth grade group; hypotheses derived from the first analysis of unhypothesized relationships were tested on the second twelfth grade group; and the findings hypothesized and verified in the first sample were cross-validated on the second group. Since standard school measures were available for both samples when they were in eighth or ninth grade, validation and cross-validation were possible of vocational maturity variables at the earlier level.

At 25 years of age more than one-half of the group lived in Middletown and its immediate vicinity—two-thirds within a two-hour drive of the city and three-fourths lived in the Northeastern States. Four-fifths had high school diplomas or the equivalent; more than a third of the high school dropouts had earned diplomas by age 25 to indicate that in a small city the dropout does not always remain a dropout. Almost half the subjects had some form of post-high school education; one-fourth completed two years of such education. One-sixth finished a four-year collegiate education; one-twentieth had master's degrees, and even fewer had a more advanced degree. College graduates had a median Otis I.Q. of 112; employed noncollege subjects had a median I.Q. of 98. High school graduates were employed at a higher occupational level and in more fields than were the dropouts. Graduates felt more successful in their jobs than did dropouts; graduates also felt they were more successful in planning their careers.

Speaking in terms of degree of occupational stability, almost 33 percent of the graduates were floundering during most of their post-high school years. Of the job changes noted, 50 percent were characterized by floundering behavior, 33 percent by trial behavior, and only 10 percent were engaged in stabilizing behavior. However, by age 25, 80 percent were engaged in stabilizing behavior. Using the career development scales to measure floundering quantitatively, moves involving floundering were found to be based on less realistic reasons for making the move than those which involved trial, instrumentation or establishment. Employment histories of the subjects point out an average of six moves each in the seven years from leaving high school until age 25, with the standard deviation being 2.50 and the range from 1 to 16. The average number of times unemployed was fewer than one, the range being from 0 to 7.

For almost five years the subjects were self-supporting, with the range being from zero to almost seven years. The subjects attained none of the highest level professional or managerial occupations, which is understandable because of their age. Excluding those still in graduate school, in military service, or unemployed, 5 percent of the subjects were in regular professional and managerial positions; 25 percent were in semiprofessional and managerial positions; 30 percent were in skilled occupations; 30 percent were in semiskilled occupations; and 10 percent were in unskilled occupations.

In the few fields they were employed, dropouts were working at lower levels. Ninty percent were average or above average in occupational success; however, less than 80 percent would remain in the same occupation if given the chance to change. and 20 percent would change. Only 20 percent felt they were in their most desired occupation; 35 percent desired to continue in the same position even though it was not the only satisfactory position; only 55 percent were "more than lukewarm" about their occupations. Using the career development measures (analyzed to point out the amount of progress from the first position held to that held at age 25) to judge improvement in the use of interests or abilities, the last move was no more appropriate than the first. However, there was a tendancy for the last move to be more realistically motivated than the first, and for the last to be comparable to the socioeconomic level of the father's and father-in-law's position.

Vocational success in young adulthood is characterized by self-improvement—realistically moving up the educational and occupational ladders—and by satisfaction with one's occupation, with outlet for abilities, and with the way one handles the pursuit of a career.

The longitudinal analyses obtained support earlier conclusions that indices of the consistency and wisdom of vocational preferences, crystalization of relevant traits, and independence of work experience are not valid predictors; however, orientation to tasks of vocational choice, acceptance of responsibility for choice, knowledge of vocational information, and planning for training and entering an occupation, do have construct validity. For example, independence of work experience, or high school work experience, has very little specific predictive validity.

However, those measures of vocational maturity which assess knowledge of training requirements, planning and interest maturity are conceptually and empirically adequate. Also, standard measures most widely used in schools and in education and vocational guidance are considered to be the best predictors of vocational development. Boys who are personally and environmentally well endowed, those who have high goals, study the demanding courses in school, get good grades and utilize extra resources in and out of school, have a tendency to handle their careers better and are more successful and satisfied with their jobs than are those boys lacking these characteristics.

Vocational Problem-Solving Experiences for Stimulating Career Exploration and Interest, by John D. Krumboltz, et. al., Stanford University, Stanford, Calif. 1967.

One of the important problems facing school counselors is to find a way to help students make vocational decisions when they are too inexperienced to make good judgments. The purpose of the three studies included in this report was to construct and analyze inexpensive, easily administered, job simulation kits. Problems typically faced by workers in five occupations and the information necessary to solve them were included in the kits. The problems presented were easy enough to insure successful responses; subjects

were able to compare their performance with a "successful" performance. Below is a description of the simulated occupational problems and the results of the experimental tests on them.

Study I: Pilot Study on the Occupation of Accounting. The purpose of this study was to determine the effect on 396 eleventh graders of a set of simulated occupational problems in accounting on their attitudes and behavior. The authors hypothesized that those students who solved simulated problems would be more interested in learning about careers and would evidence a stronger interest in accounting than students who were merely given information on accounting or general occupation information. One month before and after the experiment, the subjects were tested to learn the degree of general and specific occupational interest they had.

Accounting problem-solving, accounting information and general information material was distributed in a random sequence. Each student was given a form to ask for an interview with someone trained in vocational guidance. Those who requested guidance were briefly interviewed within 10 days after the experimental session. Two weeks after the experiment, all the students were interviewed in small groups; these subjects were administered a questionnaire to "elicit self-reporting of information seeking" after the experiment.

As hypothesized, there was an increase in interest in accounting; except for random fluctuation, there was no change in interest in the 41 other occupations listed on the questionnaire. Of the students who requested and received counseling, those who had worked with the simulated problem and those who had received the accounting information material had questions about a greater variety of occupations which were more specific and which had long term and educational career concerns than did the students who had received only general information.

Study II: Booklet-Mediated Simulation Study. The authors developed three versions each of booklets for medical laboratory technology, X-ray technology and sales occupations: problem solving, non-problem-solving and occupational information. Experimental and control treatments were randomly assigned to 561 tenth grade students from two high schools, one upper-middle class and the other lower-middle class.

Data were collected from three self-report forms and three behavioral measures which, when analyzed, pointed to the following results: students who had been given the problem-solving booklet were more inclined to work with similar booklets for different occupations than were those who had worked with non-problem-solving and occupational information booklets. They also exhibited more knowledge of job requirements and they reported requesting more occupational information than the others. The students who were from the low socioeconomic community responded more positively to all the booklets than did the students from the middle-class community.

Study III: Film-Mediated Simulated Study: 132 males and 138 females from two high schools were randomly assigned to participate in three experimental and four control groups, which are described as follows: in the experimental groups (a) an active-overt participation film presented problems and then stopped for a period during which viewers recorded their solutions in workbooks; (b) an active-covert participation film presented the same problems, but the viewers only "thought about" their responses; and (c) a passive participation film presented the same content, but no problems were posed.

In the control groups (a) regular banking career films without problem solving were presented; (b) printed banking career information materials were distributed with subjects being encouraged to search for answers to specific questions; (c) printed general career information, with interest-generating questions, was presented; and (d) a film on science education not related to information passed out to the audience and not requiring any responses was used. The authors measured expressed and inventoried interests in banking occupations, attitudes toward banking and vocational exploratory activities, and the students' reactions to the materials utilized in the study. All the data obtained was analyzed by three-way analysis of covariance and analysis of variance methods.

The results show that students who watched the experimental films expressed more interest in banking occupations than did those control subjects who were presented other materials. Those who were asked to make decisions during the course of watching a film had more interest in banking occupations than did those who were not asked to participate. There was not a significant difference between those who had to write their decisions in a workbook and those who had to merely think about their decisions. However, the overt responders did indulge in more vocational exploratory activities in the month following the experiment than did the covert responders. The students who came from a less privileged neighborhood indicated a higher interest in banking occupations than did the students from a suburban, middle-class school. The females were more interested in banking occupations and a month later were able to report more vocational exploratory activities than were the male students.

Based on the results of these studies, the authors conclude the following: (a) Problem-solving "career kits" consistently produced more interest and more occupational information seeking than control treatments; (b) Subjects from lower socioeconomic schools consistently gave more positive reactions than subjects from middle-class schools, particularly in response to the problem-solving approaches.

Career Simulation for Adolescent Pupils, by P. Marvin Barbula and Stephen W. Isaac, Department of Education, San Diego, Calif. 1967.

The purpose of this project was to examine the effectiveness of simulated environments to foster educational and vocational development of adolescents. The total population in the study was 450 students in six 6th grade classes and nine 8th grade classes. A pretest and posttest were administered to all the students, the difference in results being

said to be the change caused by the students' interaction with materials and teachers during the experimental sessions. Three of the sixth grade classes and three of the eighth grade classes were given special career simulation material which included a Life Career Game. The other classes were not given the special material.

The authors did not find any educational significant differences and they feel that more work is necessary to explore simulation as a method of teaching career development principles to adolescents. They did note that the students were extremely interested in the simulation and suggest that this interest be exploited for their educational and vocational development.

(Editor's note: The negative results of this study can be compared to those obtained in the Krumboltz study—reported on above—which dealt with eleventh and twelfth grade pupils and found definitely positive results.)

Techniques for Selecting and Presenting Occupational Information to High School Students: Volume I, Planning and Development of Research Programs in Selected Areas of Vocational Education, by Leslie J. Briggs and Eleanor L. Norris, American Institutes for Research, Palo Alto, Calif. 1966. (Editors note: The booklets developed as part of this study did not receive a final evaluation during the contract period covered.)

The exploratory work in this report was directed toward improving techniques for selecting and presenting occupational information to high school students by identifying new kinds of content for occupational information that emphasize some of the intangible aspects of jobs, and by considering better ways and formats in which such information could be presented.

Assuming that occupational information is a necessary adjunct to the guidance program that hopes to help young people plan their careers, the authors noted that such information is generally not available in most school libraries in a form that is applicable. To guide research in improved techniques for selecting and presenting such information the authors considered three hypotheses:

1. Information should cause the student to consider himself and his interests, aptitudes, aspirations, life role, types of jobs which interest him, the level at which he would be qualified for entry, training opportunities for jobs which interest him, information on specific jobs, automation, obsolescence, and other modern trends.

2. Information should be made available in relation to local employment needs and training opportunities.

3. Three developmental stages at which the student will need occupational information are:

   (a) At grades 5 through 9 information is needed about overall opportunities to help boys and girls from realistic perceptions of the places each sex now has in the world of work and of roles which may be developed later.

   (b) Appreciation of a large range of job families for student consideration as a first step in planning for an actual job. Opinions differ as to the benefits derived from studying for a specific job from the beginning, as opposed to the benefits of acquiring generalized skills which would be useful in a wide range of jobs.

   (c) The selection of specific educational or training programs which focus on a particular entry job of student interest.

In deference to the above, Briggs and Norris decided that first draft occupational information materials should be constructed for one particular job family. These materials could then be analyzed for improvement and development of similar information that could be applied to the preparation of materials for other jobs.

The project staff first sought information from general sources and local schools to use as background information, after which chosen jobs were related to local training and job opportunities. Interviews were conducted with guidance and vocational education personnel in high schools and junior colleges in the two counties adjacent to Palo Alto—Santa Clara and San Mateo. Source documents that had been prepared by these personnel and by others were also analyzed. The general impression received by the authors was that "both employment picture and training opportunity pictures are very bright for young people who will invest the time to learn skills required for available jobs." According to their economic forecasts, the largest work forces are required in manufacturing, services and retail and wholesale trade; work also forecast as available in communications, transportation, utilities, construction, finance, insurance and real estate, and parts of agriculture. The fastest-growing occupational areas are finance, insurance and real estate. The needs in agriculture are for horticulturists, landscape architects, and gardeners.

The job of secretary was chosen for the pilot study in occupational information because it is a job for which there are many employment and training opportunities nationwide. Many local high schools have courses pertinent to this job, so it is realistic to ask for classroom tryouts of the prototype materials. Included in the references are other documents which were prepared to assist girls considering secretarial work as a career.

Three booklets were then prepared which corresponded in nature to the three working hypotheses mentioned above. The first, *Women's Place in Today's World of Work*, deals with women's place in the world of work, giving information on employment trends in urban areas, education of women, and ratio of women to men with advanced degrees. The same booklet discusses the training limitations which cut down the number of different jobs women can occupy, and attempts to overcome the accepted stereotypes associated with jobs that are considered proper only for men or only for women. The second booklet, *Entry Jobs Leading to the Position of Secretary*, points out entry level jobs, for qualified persons, and describes job progression and career development within the general occupational area. The third booklet, *What It's Like To Be A Secretary*, emphasizes the day-to-day working relationships between secretary and employer, and the role of the secretary as seen by the secretary and by the employer.

The first drafts of the booklets were reviewed by several project staff members and a test based on the content of the books was taken by several experienced secretaries. In the summer of 1966, three students were asked to read the booklets and then take the test; they were then interviewed to obtain their reactions to the booklets. As a result, a revised test was developed, and then the booklets were revised by rearranging some of the topics. The format was adjusted so that the student was required to make a written response to questions after reading several brief pages. Many of the questions required the student to think about herself and her own interests and personality traits.

Effect of an Integrated Instructional Counseling Program To Improve Vocational Decision-Making of Community College Youth, by T. A. Ryan, Oregon State University, Corvallis, Ore. 1968.

In this document, Ryan reports on the evaluation of a planned vocational guidance program which has instructional and counseling components in a community college setting, the primary purpose of which is to improve the occupational choice-making of post-high school youth. The effects of reinforcement counseling techniques were tested and simulation materials were evaluated in this study. Ryan perceives occupational decision-making as a process composed of information seeking, deliberating and deciding components which involve gathering and selecting information, considering alternatives in light of consequences, and decision-making in terms of probability of success and satisfaction.

Ryan tested the following working hypotheses in the study: reinforcement counseling techniques and simulation materials are effective in improving vocational decision-making and in helping students obtain knowledge of sources of personal data and occupational information. The study also attempted to answer questions pertaining to the evaluation of an occupational guidance program: What are the effects of the program on increasing need-achievement of students? What are effects of the program on improvement of students' self concept? What are the effects of a developmental program in overcoming students' learning deficits?

A regular counseling staff was given preservice and inservice training; it used counselor packets to standardize techniques of reinforcement counseling and use of simulation materials. The population for the study was made up of 300 students at the Blue Mountain Community College, a public two-year coeducational post-high school institution in Pendleton, Ore., a city of 15,000. Results from the entrance tests required by the college was one basis on which the subjects were chosen—only those whose scores fell below the fiftieth percentile were chosen. Also, none of the students selected had yet made a firm decision with regard to their occupational plans.

The students were divided into five groups as follows: (a) Reinforcement Counseling Group with counselor cueing and reinforcement of selected vocational decision-making responses; (b) General Counseling Groups with no counselor cueing or reinforcement, the students meeting to read and discuss general vocational guidance materials; (c) Simulation Reinforcement Group with planned counselor cueing and reinforcing and groups working in simulation tasks, planning the life of simulated students similar to the general student population in the area; (d) Self-Exploratory Groups with the counselor providing self-exploratory pamphlets and fill-in exercises designed to help plan their own lives; and (e) Inactive Control, with students receiving individual counseling.

The counseling groups met for 10 consecutive weekly sessions of 50 minutes each; there were 7 to 10 students in each group. Selected topics relating to occupational decision-making were used for all groups. After the final sessions, criterion tests were given to see if there were statistically significant differences in vocational decision-making and knowledge of sources of personal data and occupational information. Analysis of variance was the primary statistical technique used in treating the data.

The results of Ryan's study support his hypotheses that vocational decision-making of community college youth can be improved by use of reinforcement counseling techniques and simulation materials with small groups of students. He found some support for his hypothesis that reinforcement counseling and simulation techniques can help students become aware of the sources of occupational information and personal data needed for vocational decision-making. The data obtained to answer the secondary research questions relating to the evaluation of the experimental guidance program showed that the subjects failed to increase in need-achievement, as measured by need-achievement scores on the Edwards Personal Preference Schedule; the subjects in the reinforcement counseling groups developed more adequate self-concepts (as measured by the index of similarity with adjusted personality on California Q-Sort) than those students who did not receive counselor reinforcement; students improved their study skills but failed to improve basic communication skills.

Ryan feels this study shows the worth of a planned vocational guidance program, integrated instruction and guidance components, with the use of reinforcement counseling techniques and simulation materials. Ryan suggests that this experimental program is economically feasible and has implications for guidance personnel in secondary schools.

The author makes the following recommendations, based on findings from the study:

1. Guidance and instruction should be integrated instead of being treated as individual components of the education-

The People Left Behind. ". . . rural poverty is so widespread and so acute that it is a national disgrace." This is one of the many startling assertions of C. E. Bishop in his report currently available as one of the series of prints of the series, *Seminar on Manpower Policy and Program*. These reports are available from the U.S. Department of Labor's Manpower Administration in Washington, D. C., or from Regional Information Offices.

al process in planning and implementing learning experiences to teach vocational decision-making.

2. Testing, counseling and occupational information services should be developed and implemented as related services designed to achieve specific outcomes.

3. The role of the counselor in the community college setting should be redefined, taking into account counseling goals and inputs such as reinforcement techniques, computer operations, and simulation materials.

4. There should be additional testing of simulation materials, and guidelines should be constructed for developing materials with different populations.

5. There should be additional research to identify and test variations of simulation experiences and materials for teaching sound occupation decision-making to people of all ages from different socioeconomic cultural backgrounds.

TOPIC TWO: Selection, Placement and Follow-Up

See Bibliography for information on availability of complete studies

How Fare MDTA Ex-Trainees? An Eighteen Months Follow-Up Study of Five Hundred Such Persons, by H. H. London, University of Missouri, Columbia, Mo. 1967.

The study is an 18-months follow-up of the pretraining and posttraining condition, experience and success of 518 MDTA ex-trainees who completed a training program in one of 51 difference classes in 19 different occupations, from October 1964 through September 1965, at St. Louis, Kansas City, and Joplin, Mo.

In order to improve methods in selection, training, motivating, and placing of the unemployed, program planners must be aware of how well the trainees are doing, their difficulties on their jobs, and any suggestions they or their employers might have to improve the counseling, training and placement programs. The purpose of this study was to reach some conclusions about the effectiveness of the training and other services received under the Manpower Development and Training Act (MDTA) program and how they might be improved.

The following questions were asked in the study:

1. What has been the personal, educational and family backgrounds of the ex-trainees?

2. What has been the employment and unemployment record of these ex-trainees prior to training?

3. How well were these ex-trainees doing in the occupations for which they were trained, or others in which they might be employed, in comparison with others similarly employed?

4. What did these ex-trainees earn in their original placements following training, and what were they earning at the time of the three subsequent contacts?

5. What observable changes, if any, have taken place in their modes of living following training?

6. What suggestions have they or their employers for improving the counseling, training and placement services in order to better prepare them for satisfactory employment?

7. What likelihood is there that these people will pay income taxes during their normal working lives in sufficient amounts to compensate for their training, and what savings will accrue through reductions in welfare payments by reason of the training and placement programs?

8. To what extent do the results from this study validate and support Form MT-103, used by the Employment Security Office units and 12-months follow-ups?

Data of the following nature were obtained from records in the State and local Employment Security Offices of the public schools, the State Department of Education, and the State Division of Welfare: A list of occupations for which training was given, educational and employment experience, marital status and number of dependents, cost of training, post-training employment record, and amount of welfare paid during the period beginning 18 months prior to training and ending 18 months after training.

An interview schedule was used in contacting the ex-trainees 6, 12, and 18 months following completion of training to validate previously secured data, difficulties encountered on their jobs, suggestions they had for improving training, and changes in their modes of living. The employers rated the ex-trainees immediately following each of the three interviews to show standing on a five-point scale in terms of interest in work, eagerness, willingness on the job, and other characteristics which would indicate their overall promise as employees. The employer also indicated the specifics of the job itself, including duties and wages paid; suggestions for improvement of the training were solicited.

While London makes no claim that the findings of this study can be related to the whole country, they do give an accurate presentation of the MDTA program at that time in St. Louis, Kansas City and Joplin. Conclusions might be applicable to other cities of comparable size and circumstances during the same period covered by this study.

Conclusions of the study are:

1. The program served predominantly nonwhite, female natives of the cities in which the programs were conducted; those who completed the program were of average intelligence and education was above average. Many came from broken homes, lived in crowded housing conditions with many dependents, and had low incomes.

2. Prior to training, work histories were irregular: many of the younger trainees had never had regular jobs, and those who had worked were in skilled, semiskilled, unskilled and service occupations with low wages. Approximately one in five received welfare, usually aid to dependent children.

3. The program was successful in assisting those hardcore unemployed (i.e. low ability, poorly educated, unskilled persons). Eighty-eight percent were employed 18 months after the end of training, and there was some improvement in their modes of living.

4. Posttraining employment was mostly in occupations for which the ex-trainees had been trained or was closely related. There was some occupational upgrading in terms of type of job, wages received, job satisfaction and job stability. These results were better than those received from regular day preparatory vocational programs. It should be kept in mind that MDTA trainees were adults, while adolescents make up most of the day trade preparatory school populations.

5. Respondents indicated that placement services are not entirely satisfactory. Lack of motivation, low wages, unfavorable working conditions, and inadequate coordination among agencies are partially responsible.

6. Employers viewed employee attitudes as the single most important factor in job success.

7. The overall manner of living of ex-trainees is expected to continue much the same for a year or two. Jobs and wages of the ex-trainees will be important factors in their vocational rehabilitation, their standard of living, and their stability as homemakers, workers and citizens.

8. Improvement is needed in the guidance, placement and job follow-up services provided by the Employment Security Offices for MDTA trainees and ex-trainees in terms of additional staff, better trained staff, changes in approaches and procedures.

9. Ex-trainees may eventually pay into the U.S. Treasury more than enough income taxes to reimburse the government for its investment in their training. In addition, they will contribute to the economy as members of the work force, and should be more satisfied with themselves as human beings.

10. With slight changes and few additions, Form MT-103 appears to be satisfactory. The form might be modified or completely changed if the Employment Security Offices should extend its services to include a more frequent and thorough job adjustment type of follow up.

The author recommends:

1. An even larger and more effective program of basic education, guidance, training, placement, and follow-up service should be provided for able-bodied unemployed people of working age in the slum areas of our big cities, and perhaps in smaller communities as well, accompanied by a plan for providing more jobs for them either in the private or public sector of the economy after they are trained.

2. Positive and vigorous efforts should be made to provide information and assistance for planned parenthood so as to stabilize families and minimize the practice of producing unwanted and ill-cared-for children to be supported through ADC.

3. More attention should be given to screening and selection of trainees to the matching of individual assets and liabilities with job opportunities and requirements (enrollment of a person with little interest and motivation, and placement in a position in which training is not applicable is wasteful).

4. As in all vocational education, the teaching content of MDTA training classes should be appropriate to the occupation and the enrollees concerned; teachers should be competent to teach the necessary skills and related job information; courses should continue long enough to develop marketable skills; and the end point of the course should be the placement of at least 75 percent of the ex-trainees in the occupation for which they are trained or a closely related one. Added attention should be given to all of these and to the development of acceptable worker attitudes.

5. The various agencies that serve the poor and the unemployed—Employment Security, schools, Division of Welfare, agency administering unemployment compensation, OEO, Vocational Rehabilitation Service, and others—should be more closely coordinated than they are now to minimize overlapping or duplication of services.

6. Day nurseries for the children of working mothers of poor families should be established and maintained, and working mothers themselves should be provided with continuing education in child care and development, consumer education and home and family relations. These agencies should be closely coordinated with the Employment Security Offices, schools, and the State Division of Welfare. This would go a long way towards reducing aid to dependent children.

How High School Cooperative Trainees Fare in the Labor Market, Phase D: A Follow-Up Study of 1965 Graduates Ten Months After Graduation, by Peter Haines, et al., Educational Research Series No. 39, Michigan State University, East Lansing, Mich. 1967.

This report covers the fourth annual phase of a major study of cooperative education which was begun in 1963, and is part of the continuing evaluation of vocational education in Michigan. An assessment of the employment status of trainees 10 months after graduation is used to measure the effectiveness of secondary school cooperative occupational education programs. This report indicates that the trainees do exceptionally well in the labor market, obtain employment quickly, and have low residual unemployment. Many are still working for the employers who trained them; 16 percent are furthering their post-high school education on a full-time basis.

The cooperative plan of vocational education is used in Michigan high schools with an enrollment of more than 900 students. Under this plan a student enrolls either for the eleventh and twelfth grade or for the twelfth grade alone. He is placed with an employer who will provide occupational training, is paid a regular wage, and works 15-25 hours a week. Generally, at least one of the student's classes is directly related to his job. The following questions were used to measure the contributions of cooperative education:

1. What proportion of the graduates were employed approximately 10 months after graduation? Do employment rates vary among the three fields of training—office, distributive and trade and industrial occupations?

2. To what degree do graduates find employment in an occupation the same as, or similar to, the one in which they were trained? Are there differences among those trained in office, distributive and trade and industrial areas?

3. To what extent do employers of cooperative trainees retain them as full-time employees?

4. Does the cooperative trainee's scholastic ability, as measured by rank in class, compare with that of non-cooperative education students?

5. What is the span of time before the trainee accepted his or her current full-time employment?

6. What additional education do cooperative trainees undertake after graduation?

7. To what extent to cooperative trainees attending a post-high school educational institution concentrate in a field comparable to their cooperative training?

8. To what degree do cooperative trainees attending a post-high school educational institution defray educational training?

The population for the study was made up of public high school student in Michigan who graduated at the end of the 1965 spring semester and who were, at the time of graduation, trainees in a reimbursable cooperative occupational program in office, distributive or industrial occupations. The estimated qualified population was 8,720; usable replies were received from 4,424 trainees, or 54 percent of the population.

After obtaining a list of graduates from school coordinators, each trainee was mailed a questionnaire card and a letter explaining the purpose of the study; a follow-up letter was sent out two weeks later to those who had not originally responded. The questionnaires were screened for completeness and all information was transferred to punch cards, which are now stored and available for longitudinal studies in future years. Tabulation and data analysis was done on the CDC 3600 computer at the Computer Center of Michigan State University.

The major findings of the study reveal the following information. The unemployment rate was low—hardly more than one percent were unemployed 10 months after graduation. A significantly large number of trainees—almost 4 out of 10—were attending college or enrolled in a school beyond the high school on either a full or part-time basis. Twenty-six percent of the trainees were not in the labor market, but were listed as housewives, students or military. Most of the trainees were working in the fields for which they had been trained, e.g., 89 percent of the office trainees were working in an office occupation, 47 percent of the distributive trainees were working in a distributive occupation, and 70 percent of the industrial trainees were working in an industrial occupation.

The employers who had trained the cooperative trainees were benefiting in that they were securing full-time workers—25 percent of the trainees were with their cooperative firms 10 months after graduation; 37 percent worked for their cooperative firms for a period of less than 10 months. The cooperative trainees were average or above average students academically—40 percent of the office trainees ranked in the upper quarter of their graduating class, and the following were in the upper half of their class: 75 percent of the office trainees, 45 percent of the distributive trainees, and 47 percent of the trade and industrial trainees.

Based on the experience gained in this study, the authors recommend that similar studies should be continued each year—as they have been for the four years 1962-1965—so that a continuing inventory can be obtained of the contributions of cooperative education. (At the time of writing this report, the decision had been made not to continue the study.) They also recommend that schools keep better student records so that evaluation by follow-up can become an integral phase of the evaluation of vocational education and its contributions. The authors suggest that local programs should be looked at closely to see if student placements accurately reflect the occupational instructions being received.

Some comparisons between annual summaries are given in this report. For example, from 1962 to 1965, although the number of schools offering cooperative education programs increased 54 percent, the number of students participating in the program almost doubled. The percent of graduates remaining with the cooperative employer 10 months after graduation dropped from approximately 55 percent in 1962 to approximately 25 percent in 1965. Graduates attending post-high school institutions increased from 29 percent to 37 percent. The direct relationship of training received to the field of study in post-high school institutions increased in office work from 44 percent in 1963, to 79 percent in 1965; in DE from 21 percent to 70 percent; and in T&I from 44 percent to 73 percent. Comparisons of other relationships which were discussed in this report varied by only a few percentage points.

Problems in the Transition From High School to Work as Perceived by Vocational Educators, by A. P. Garbin, et al., The Center for Vocational and Technical Education, The Ohio State University, Columbus. 1967. (Editor's note: this study has relevance to Placement and Follow-up, as well as to curriculum planning.)

In recent years the 14-24 year old age group has an unemployment rate two to three times higher than the national unemployment rate average, pointing to the difficulty that young people have in adjusting to the world of work. This high unemployment rate can be partly identified in light of the interaction of new technology and changing consumer behavior which has resulted in a decline in agricultural employment, a decrease in the proportion of production workers, displacement by automation of semi-skilled and unskilled occupations, and a constant or increased employment of production supervisors, skilled craftsmen, and more demand for service-production personnel. Successful work adjustment involves training young people to meet nontechnical, socio-psychological aspects of a job, as well as the technical requirements.

The overall project, of which this study is a part, has two purposes: (a) To develop and test solutions which will be instrumental in alleviating some of the most crucial worker adjustment problems; and (b) to encourage the adoption of new instructional materials as well as other programmatic solutions. The main objective of this exploratory study was to collect data from vocational educators that would assist

in guiding the overall project: (a) data pertaining to the identification of problems faced by youths in transition, (b) curriculum materials used by vocational educators which were thought to have an influence in alleviating these problems, and (c) recommendations to facilitate the transition from school to work.

The interview schedule contained questions in six general areas: (a) personal characteristics of the respondents and information about their schools; (b) problems considered to be of major importance in the transition from school to work; (c) impediments to transition which exist in the community or the school; (d) curriculum, including teaching aids, that might help to alleviate transitional problems; (e) problem-solving ideas from the respondents; and (f) the educational and occupational background of the respondents.

The 69 vocational educators recommended by the local directors of vocational education or district superintendents of the schools' systems and chosen as respondents were from urban communities throughout the United States; they had at least two years of experience, were considered to be knowledgeable about the world of work and the problems of worker adjustment, were dedicated to their jobs, and represented a balanced sampling by position. Each respondent received a letter which described how he was chosen for the sample, the purpose of the study and the nature of the upcoming interview. Two weeks later he was interviewed for approximately two hours.

Frequency and percentage distributions were made of data on respondents' personal characteristics and backgrounds. After grouping them into categories, frequency and percentage tabulations were made for each impediment (which faces youth in the transition period); frequencies were also determined for most important and second most important impediments. Because of lack of agreement among respondents, suggestions relating to materials, procedures and program for use in schools were enumerated under various category headings.

Most of the respondents came from non-professional homes, yet they themselves had finished at least four years of college, and several had received a master's degree; they had worked in the field of education for most of their careers, predominantly in vocational education; the annual salary was reported at $10,000, and the majority are working in comprehensive or vocational-technical high schools of approximately 2,000 pupils.

Of 49 specific impediments identified by the respondents, the following four were reported by more than 40 percent: unrealistic aspirations and expectations; poor attitudes toward work and working; lack of responsibility, maturity, and self-discipline; and lack of knowledge of the real demands of work. The most important and second most important impediment reported by most was "lack of responsibility, maturity, and self-discipline." Several broad categories of adjustment problems were determined:

1. *Job Preparation*—lack of experience, unrealistic expectations, lack of basic job skills, and training, etc.
2. *Attitudes Expressed in Behavior or Adjustment to Situation*—immaturity, irresponsibility, disregard for personal appearance, health habits, etc.
3. *Vocational Behavior*—inaccuracy, absenteeism, tardiness, poor work habits, inability to follow directions, etc.
4. *Personality Variables*—individual differences, related needs, aspirations, values, goals being unrealistic.
5. *Family Background and Obligations*—socioeconomic status, parents' occupational aspirations, lower-class attitudes, etc.
6. *Academic Emphasis*—overemphasis on college preparatory courses and college-bound students, poor image of vocational education, etc.
7. *Factors Inherent in Job*—overly high job requirements, employers' unrealistically high expectations, monotonous work, etc.
8. *Discriminatory Factors*—Child Labor Laws, unions, negative image of youth, racial discrimination, etc.
9. *Factors Inherent in Community*—wage structure, lack of local job opportunities, inadequate transportation, etc.
10. *Military Obligations*—uncertain draft status.
11. *Other*

The largest number of respondents, or 85.5 percent, mentioned the first category—"Job Preparation."

The authors feel that vocational educators offered only a sparse group of suggested materials and methods which might be considered for the control or elimination of adjustment problems; there was also a wide variety of ideas that could be of considerable use in the curriculum. Of the suggestions for improving the situation received from respondents, 49 are presented in the summary under 5 broad headings: "Suggestions for Development of Books, Pamphlets and Booklets," "Suggestions for Audio-Visual Materials," "Suggestions for Development of Services and Facilities," "Suggestions for Improvement of Programs and Curriculum," and "Suggestions for Projects, Kits and Tests."

Lack of relevant up-to-date materials was cited most often by the respondents; they were also concerned with the poor image vocational education has in the schools, as compared to the emphasis placed on college preparatory programs.

The authors conclude in their summarization: "School administrators, counselors and teachers must constantly evaluate their goals and methods to ascertain that they are not encouraging rigidity and conformity to cultural and occupational stereotypes. Curricula must permit individual differences and societal changes to be incorporated as a foundation for the determination of educational objectives. If cognition of basic skills and technology becomes the main function of educators then youth will continue to enter an adult society half-prepared for adequate, meaningful and productive living. By integrating the proper attitudes and values, as well as skills, into the curriculum, youth's transition from school to work can be made less problematic."

TOPIC THREE: Occupational Trends

See Bibliography for information on availability of complete studies

Methodology for Projection of Occupational Trends in the Denver Standard Metropolitan Statistical Area, by Leslie Fishman, et al., University of Colorado, Boulder, Colo., 1966.

A review of this report was prepared by Robert Bretzfelder and Robert McIntyre of the Research Office of the Office of Manpower Policy, Evaluation and Research, U.S. Department of Labor. This review summarizes and evaluates the ways of projecting area manpower needs, and it is relied upon heavily for this article.

In surveying and evaluating the state-of-the-art of local occupational manpower demand projections, the study analyzes the literature and techniques of employment projections and occupational forecasting and available data for making forecasts. It also analyzes possible methods for improving national and local employment statistics, and many of the national and local occupational demand forecasts. It suggests "ideal" methodology and data collection techniques. The authors develop an experimental model (of the Denver area economy) which has several tables that show the nature of production relationships of industries and employment distribution in the major industries by major occupation, and provide employment predictions for 1970 and 1975 for 20 major occupations in 10 major industries. The authors point out that present data for many areas are inadequate and, thus, not available for use in such sophisticated techniques. The *supply* of labor, a factor which must be related to *demand* prior to drawing conclusions for future local occupational training requirements, is not treated.

Matrices are developed and analyzed to examine economic relationships. An industry-occupational employment matrix indicates the level of employment in an individual industry for a specified occupation; an interindustry input-output table indicates the amount of purchases and sales of goods and services which comprise the productive relationships of the economy. The application of these tables to a Standard Metropolitan Statistical Area (SMSA) is shown through the use of a (a) "structural" matrix which indicates the total number of employees in each occupation, and (b) a "coefficient" matrix of the percent of total employees in each industry by occupation.

Assuming the availability of data and trained personnel, projections of future occupational employment are started by developing local industry-occupational matrices for prior years. Forecasts of future occupational profiles are made on the basis of data obtained from analysis ow the historical trend observed; industry-occupational matrices are then constructed for future years. At this point, information from businessmen, educators and others should be considered. The final profiles depend upon demand for the products of each industry, which depends on resources available and the extent to which they are utilized in 1970 and 1975. The goal is that projections be accurate as decision guides in vocational and general education.

Six models are developed and analyzed for constructing local occupational projections. Each model is shown in matrix and nonmatrix form. Two of the methods are indicated as more feasible for local occupational projections: (a) data are availible to support them for the sub-regions, and (b) their occupational forecasts can adequately guide vocational and manpower planners. The first method—analysis by industry—is for use in a region where industries can be logically grouped in primary, secondary and tertiary economic categories, and it is necessary to superimpose upon it an occupational profile to be able to project total employment by occupation.

The second method—analysis by occupation—emphasizes the direct projection of time series on four occupational groupings: white collar, blue collar, service, and farmers and farm workers. Inasmuch as this method lacks depth of occupational detail, projections are not of great value to educational authorities. Occupational employment data is generally obtained, in part, from local employers, unions and professional societies, which seem to have individual and inconsistent occupational definitions. Also, the authors report that the 1950 and 1960 censuses show that current detail is not supported by the data.

A detailed, state-of-the-art, bibliography of employment projections which emphasize local occupational forecasts is provided. There are studies by private firms, nonprofit and academic institutions, and the Government. The authors have reviewed statistical evaluations of projections described in this bibliography, giving information on which to judge the relative strengths of the different methods. Four approaches for projections of future employment (and evaluation of the literature for each type) are shown: "(a) ask employers to predict their employment, (b) extrapolate historical data, (c) relate estimates of total economic activity to individual industries, (d) analyze the characteristics of demand and develop projections through statistical relationships of the factors having the greatest influence on demand. Included in the latter method are most of the so-called historical studies."

Also reviewed are 1950 and 1960 census figures, data from the current Populations Survey and from the Bureau of Employment Security, and the series on employment and earnings of the Bureau of Labor Statistics. Criticism of census data is chiefly of its qualitative evaluations in dealing only with the major occupational breakdowns on a national basis. For Standard Metropolitan Statistical Areas occupational projections, detailed occupational information on a local basis is traditionally used.

The authors also pointed out errors in occupational classifications. In their review of data applicable to projecting employment in the Denver SMSA, the authors cover sources and problems which are nationwide. They critically review data of the Bureau of Labor Statistics, the Bureau of the Census, Social Security Administration, and the Colora-

do Department of Employment, with emphasis on definitional problems and problems caused by breaks in time series.

Findings of the report were summarized by the authors as follows:

> The conclusion one must make from the review of the national data available from Census in the occupation and industry fields is that these data are not too promising for use in job predictions for SMSAs. Unfortunately, the Post Enumeration Survey and the Employer Record Check are not available on an SMSA basis, but if national estimates are any guide, the SMSA results would not be optimistic. If one were seriously thinking about use of the census data on an SMSA basis, it would certainly be important as a first step to explore with the Bureau of Census the possibility of running special sections of the PES and ERC applicable to the specific SMSA's involved. . . . However, the inescapable conclusion seems to be that (current and historical) occupational information should be gathered from employers, and the sooner such a program is inaugurated, the sooner will we have reliable information on which to rationalize the labor market."

Three paths are suggested to improve occupational data at the regional level: (a) increase the size and detail of the MRLF (Monthly Report on the Labor Force) by Census; (b) broaden the BLS search for occupational data, along the lines they have already begun, from professional societies, from regulatory agencies, and from other similar sources, and (c) cooperate with business to standardize job descriptions, much as the steel industry has done, and begin to get automatic occupational data as a by-product of already existing reports (either the Social Security or the unemployment reports). In other words, if each Social Security number (or unemployment compensation deduction) included a job classification number, too, then occupational statistics from industry would be automatically available.

Occupational Job Requirements: A Short-Cut Approach to Long-Range Forecasting, by Norman Medvin, U. S. Employment Service, Washington, D. C. 1967.

The Manpower Development and Training Act of 1962 maintains there must be a reasonable expectation of employment for trainees before training courses can be approved, and the same concept is present in the Vocational Education Act of 1963 and the Economic Opportunity Act of 1964; thus, there is a need to design a technique for forecasting long-range occupational job requirements.

The U.S. Employment Service has used the area skill survey technique and training needs surveys, which depend on the validity of employer forecasting. This and other methods are limited in that they are expensive, complex, time consuming, inapplicable to the local areas, and too costly to be performed frequently. State Employment Services, which were given a mandate to make job market information available to vocational school systems under the Vocational Education Act of 1963, have been unable to do so because they have been given no additional funds and the present methods are too costly. (In a few cases the State vocational education agency has shared the cost of a skill survey with the State Employment Service.)

Before attempting to derive a new technique, the author warns againts devoting too much attention to two "myths," the first of which is that emerging occupations will have an important impact on the job market for many years to come, while in fact the job structure changes slowly and the older jobs still account for the bulk of occupations. The second myth is that forecast projections must be precise; the author feels that in the field of counseling and training such exactness is unnecessary, and that it is important only to know the proper direction and magnitude of employment change. For example, if there are funds or physical facilities for only two classes of 25 each, how important is it to know if the true need is 250 or 750?

The author describes a new technique-"Employment Service unfilled job openings-Occupational Outlook Handbook" approach. Unfilled job openings are defined as those live job orders given by employers to the Employment Service which remain unfilled because of a shortage of qualified applicants—this data is presently collected quarterly in 80 of the largest metropolitan areas of the country and will soon be collected in an additional 70 areas. Differing from ES unfilled job openings are job vacancies, or the universe of job openings in an area. The *Occupational Outlook Handbook,* published biannually by the Bureau of Labor Statistics, provides current and long-range qualitative information on 90 percent of the professional, managerial and technical occupations. The *Dictionary of Occupation Titles,* Third Edition, which contains 18,000 defined job titles, is also utilized in this technique.

The first step in the new technique is to obtain a listing of the ES job openings that have been unfilled for 30 days or more, and then to evaluate the relationships of these openings to the *total* unfilled openings for each occupation quarterly, for at least one year to compensate for seasonal fluctuations. If the ES "hard-to-fill" job openings compose over 30-40 percent of the total for several quarters, this indicates that the occupation is in a continuing shortage situation. These hard-to-fill occupations should be subdivided according to the size of the area, e.g. in a large urban area occupations with 100 hard-to-fill openings would go in the first category, those with 20-99 hard-to-fill openings would go in the second category, with the rest going in a final category.

The next step is to relate long-duration unfilled job openings to the total of hard-to-fill vacancies in an area, if the data are available, in order to obtain a series of factors that will make possible a "blowup" of the unfilled job openings data to universe proportions to determine area needs. After the array of occupations in short supply by category of volume is achieved, the next step is to assess the long-range opportunities in those occupations by referring to the *Occupational Outlook Handbook* which has national projections by occupation.

In defending the application of this technique to the local scene, the author presented the following illustrations, bearing in mind that in the situations described the occupations exist in important numbers and there has been a shortage for a year or more in the community:

1. *The cross-industry occupation*—If the national projection indicates expansion for such occupations as bookkeeper, or stenographer, the broad-based nature of the occupa-

tion in the community would present little chance for deviation from the national trend.

2. *The specific industry-occupation tied to broad-gaged income trends*—If the national projections shows expansion for such occupations as bank teller or barber, the risk of applying growth to a specific community is quite minimal.

3. *The specific industry-occupation tied to national growth and institutional factors*—Would anyone question the application of national growth in nurse and other hospital occupations to a local community where there is already abundant evidence of shortage in these positions?

4. *Another possibility*—What about the occupation in a specific industry in which the national long-range projection is favorable, in which there are current local reports of shortage of certain workers in that local industry, but in which the long-range projection for the plant in the community is not favorable? The economist in this case, knowing the precarious status of the plant, would make an adjustment reducing the size of the local need. But suppose that the plant is secretly planning to close? Neither this nor any other technique would be able to produce the right answer. In other words, the unfilled openings—OOH technique is capable of making the same error as other techniques, but with less cost, trouble and effort.

5. *The industry-occupation which is expanding in a local community but for which the national prognosis is contraction.* Again, the local economist would easily be able to make a knowledgeable adjustment.

The author states that in an indeterminate number of areas the technique may not be suitable due to an unusually low number of ES unfilled openings and the absence of job vacancy data.

It is estimated "that the conduct of an unfilled job openings—OOH survey to satisfy vocational education, MDTA and OEO needs would take a single manpower economist an average of not more than six weeks for a survey in a metropolitan area. Total cost to the Employment Service for 150 areas may be up to $200,000, and undoubtedly less as experience is gained, all 150 areas to be completed in one year and repeated at one-year intervals This sum does not include collection of ES unfilled openings data which are now collected in 80 areas and are scheduled to be expanded to 150 areas, with or without the application of this technique.

(Editor's note: Inquiries resulting from review of this publication indicate that the short-cut approach to long-range forecasting has been given considerable field testing about the country with good success. The plan is operational, but not established. Survey costs are not prohibitive, i.e., approximately in the range of six to eight hundred dollars. Additional information will be presented in subsequent *Research Visibility* reports.)

PLAIN TALK

THE LIMITED SPACE available to "Plain Talk" in this report makes necessary a sharp delimitation of treatment to a selected few topics which are highly important to vocational and technical education in general and to guidance services in particular. Hopefully, the following are much more than straws-in-the-wind and greatly deserve more detailed description than a once-over-lightly treatment: (a) Sect. 4(c) Research Projects in New Careers and Emerging Technologies, (b) publications and reports of the International Labour Office, (c) the challenge of "the good guys and the establishment" of the Education Professions Development Act, and the *Directory of Federally Supported Information Analysis Centers.*

The Career Opportunities Branch (COB) of the Division of Comprehensive and Vocational Education Research (DCVR), OE Bureau of Research, has distributed a five-page description of currently funded research projects under a dateline of Aug. 21, 1968. Branch Director Bernard Yabroff of COB (400 Maryland Ave., S.W., Washington, D.C. 20202) makes available the following description of projects which are investigating *new careers in public service activities*:

Administration of Justice (parole, probation, police work). Purpose is to identify and structure subprofessional jobs and curricula. (The New Careers Development Organization, Oakland, Calif.)

Public and Private Social Service Agencies (semi-independent aides). Purpose is to determine the potential for employment and education of subprofessionals; develop curricula to be offered by four Chicago junior colleges. (The YMCA of Metropolitan Chicago.)

Instructional Media (graphic, photographic, electronic, television, etc.). Purpose is to analyze roles and functions of professional, technical and paraprofessional personnel. Curriculum guidelines will be developed. (The NEA's Department of Audiovisual Instruction.)

Recreation Services (recreation programs in hospitals, medical care facilities, senior citizen programs, etc.). Purpose is to examine subprofession careers to staff recreational programs for the ill, disabled and the aged. (New York University, Division of Physical Education, Health and Recreation.)

Major Municipal Agencies (careers in libraries, inspection services, recreation, planning, finance, public works, police, personnel departments). Purpose is to examine application of new career concept to functions and responsibilities of local government. (The Berkeley (Calif.) Institute for Local Self-Government in cooperation with the League of California Cities.)

The above listed projects have in common the design to (a) use job analysis techniques to identify the nature and scope of job tasks and physical, mental and interpersonal job skills; (b) organize tasks and skills into career sequences, and (c) develop articulated secondary, post-secondary and higher education programs for the training.

COB is also supporting research on cost and service de-

livery implications of alternative uses of sub-professionals in ***Human Service Agencies.*** Purpose: Application of cost-benefit analysis to identify experiences of school districts in the employment of nonprofessionals as classroom aides. (The University of Oregon Industrial Relations Institute.)

Emerging Technical Occupations

Research is also being supported in emerging technical occupations to (a) identify emerging subprofessional career opportunities, job tasks and skills in selected, expanded technical fields, and (b) develop curricula at appropriate levels to prepare youths and adults for successful careers.

Electro-Mechanical Project (design testing, manufacture, calibration, operation and maintenance for missile and computer industries, automated production facilities, etc.). The Technical Institute of Oklahoma State University, James Connally Technical Institute and Texas A&M University (Waco), and the Division of Evening Studies of Lowell Technological Institute (Lowell, Mass.) are cooperating here. Generalized curriculum for technicians to assist professionals is now being demonstrated, tested and evaluated.

Bio-Medical Equipment Project (medical technology, medical research). Project is currently in curriculum development and testing phase. (Springfield Technical Institute in Massachusetts and James Connally Technical Institute, Waco, Texas.)

Nuclear Medical Project (application of radioisotopes in medical diagnosis, treatment and research.) This project is just getting underway to develop and pilot test a post-secondary program for technicians for jobs in hospitals, clinics, research facilities and with manufacturers of nuclear medical equipment and pharmaceuticals.

Electro-Optical (including laser) Technology (Electrical, electronic, and optical disciplines) James F. Connally Technical Institute has the responsibility for development, pilot test and evaluation of a post-secondary education program for technicians to work on design, testing, manufacturing, calibration, operation, and maintenance of complex electro-optical equipment and systems.

International Human Resources

The attention of *RV* readers, particularly those who are interested in vocational education and human resources, is invited to the availability of numerous research and informational materials from the International Labour Office. The following have lately come to the *RV* desk: *Publications of the International Labour Office, 1954-1965* (Catalog), and *ILO New Publications* (Volume No. 26, June 1968).

Generally, the following ILO publications are available at subscription rates: *International Labour Review* (annually $6.00; per number 60¢); *Official Bulletin* (annually $5.00; per number $1.50); *Legislative Series* (annually $7.50; per number $1.50); *Bulletin of Labour Statistics* (annually $4.00; per number $1.25), and *Year Book of Labour Statistics* (annually paper $10.00; cloth $12.00). Inasmuch as the scope of the publications is quite extensive, it is advisable to consult the catalog (listed above) for descriptions of the various publications.

Vocational and technical educators should be familiar with especially the ILO's CIRF Publications which basically represent, "A specialized information service in all aspects of vocational training and education, based on a systematic program of documentation and research in the fields of vocational training for workers, supervisors, technicians, and assimilated personnel in all sectors of the economy, including administrative services." Specifically, the CIRF publications are: *Training for Progress* (four, 32-page issues a year, $2.80); *CIRF Abstracts* (loose-leaf form digests on training, world-wide; annual $8.00); and *CIRF Monographs* (specific vocational training studies, irregular publication, varying prices). Presently available: *Training of Vocational Teachers* and *European Apprenticeship.* CIRF publications are available from International Labour Office, CH 1111, Geneva, Switzerland.

JANUARY ISSUE . . . The studies which will be reported in the next issue of *Research Visibility* deal with Administrative Problems in Vocational Education.

The Good Guys and the Establishment

The vast pool of human resources also includes those educational personnel who make up the manpower necessary to adequately staff the nation's vocational and technical education program. Generally these personnel are professional vocational educators. With the advent of the Education Professions Development Act (EPDA) of 1967, which is currently administered by the Office of Education's Bureau of Educational Personnel Training, the education and preparation of all vocational personnel will not be conducted as "business as usual."

Vocational education funds will be administered by the new Bureau. The members of "the establishment" will have little difficulty in recalling a similar switch which occurred with the administration of vocational research funds at the hands of the "good guys." The only thing worse than the administrative split is the lack of definition and description of the "good guys" and the "establishment." Presently there is no specialized, experienced, professional vocational personnel in the new Bureau, a condition also prevalent in numerous other offices which are administering policies and provisions affecting the nation's program of vocational and technical education.

The newly enacted vocational education legislation which reflects the wisdom and good judgment of the Congress will correct some of the imbalances of the administrative process. It may come to pass that the good guys and the establishment will learn to work together for the common good—the extension of vocational education to *all* of the nation's citizens. It is plainly obvious that the establishment will have to exert strong, aggressive and insightful interest and involvement in the new educational manpower bureau, beginning with the formulation of new guidelines and regulations, the conduct of the activities of the education of vocational personnel, and the evaluation of the bureau

effort. It is assumed that vital parts of the establishment are, as they have always been, strong working relationships with business and industry, labor, the farm, the home, and other sectors of American life which have strong concerns for the opportunity and quality of the vocational program.

The rallying focus of the profession of vocational education is the American Vocational Association and its successful history of accomplishment, including the achievement of contemporary support, modernization and communication with the members of Congress whose vision happily extends beyond conditions which produce the good guys and the establishment.

More Research and Information Resources

RVs fine print at the end of this report has a word about the *Directory of Federally Supported Information Analysis Centers*. This is a rich source of information for a very moderate price. "Good hunting!"

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FSIAC DIRECTORY

The *Directory of Federally Supported Information Analysis Centers*, published by COSATI (Committee on Scientific and Technical Information, Federal Council for Science and Technology), is available from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va. 22151. April 1968. Price: $3.00. PB 117 050

The *Directory* definition of an information analysis center is as follows: "An information analysis center is a formally structured organizational unit specifically (but not necessarily exclusively) established for the purpose of acquiring, selecting, storing, retrieving, evaluating, analyzing, and synthesizing a body of information and/or data in a clearly defined specialized field or pertaining to a specified mission with the intent of compiling, digesting, repackaging, or otherwise organizing and presenting pertinent information and/or data in a form most authoritative, timely and useful to a society of peers and management."

In addition to an alphabetical listing of centers (which contains address, telephone, name of director, sponsor, year started, scope, services available, staff, and qualified users), this descriptive directory contains a subject area index, as well as an index of names of center operators or directors, a list of organizations, and a list of locations.

Below are samples of the 113 centers listed in the *Directory*:

- Air Force Machinability Data Center
- Binary Metal and Metalloid Constitution Data Center
- Bureau of the Census
- Chemical Thermodynamics Data Group
- ERIC Clearinghouses (14)
- ERIC Counseling & Personnel Services Information Center
- Laboratory Animal Information Center
- National Center for Educational Statistics
- X-Ray Attenuation Coefficient Information Center

The following types of information services were excluded from the *Directory*: management information services; holders of raw data files; conventional scientific or technical libraries; abstracting, indexing, and accession services; document depots; mapping and charting activities; regional or state information services.

DOCUMENT SOURCES

The material reported on in *Research Visibility* may be obtained from several sources. The source of each publication is indicated in each entry. The key to the abbreviations used there and instructions for obtaining the publications are as follows:

CFSTI—Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. Copies of reports with this symbol may be purchased for $3 each (paper) or 65 cents (microfiche). Send remittance with order directly to the Clearinghouse and specify the accession number (AD or PB plus a 6-digit number) given in the listing.

ERIC—Educational Resources Information Center, EDRS, c/o NCR Co., 4936 Fairmont Ave., Bethesda, Maryland 20014. Copies are priced according to the number of pages. The MF price in the listing is for microfiche; the HC price is for paper copies. Send remittance with order directly to ERIC-EDRS and specify the accession number (ED plus a 6-digit number) given in the listing. *How to Use ERIC*, a recent brochure prepared by the Office of Education, is available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402; the catalog number is FS 5.212.12037; price: 20 cents.

GPO—Government Printing Office. Send orders directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, with remittance for specified amount.

MA—Manpower Administration. Single copies free upon request to U.S. Department of Labor, Manpower Administration, Associate Manpower Administrator Washington, D. C. 20210

OTHER SOURCES—Where indicated the publication may be obtained directly from the publisher at the listed price.

RESEARCH VISIBILITY

Synthesis / Application / Dissemination

ADMINISTRATIVE PROBLEMS IN VOCATIONAL EDUCATION

VOCATIONAL EDUCATION IS OPPORTUNITY: Too often research and the implications of research are directed at professionals *other* than the administrator. Too often administrators are prone to ignore research implications in the press of time and gingerly "delegate" the interpretation of operational meanings of research to others. Happily, there are investigators who believe that the administrative process and its many related problems are researchable. Some of their studies and investigations have been reviewed and abstracted for this issue of *Research Visibility*.

Vocational and technical education as *opportunity* for youths and adults has been much more than an academic challenge for conscientious program directors on all levels of administration. Despite the innovative nature, the contemporary flair and new themes of modern legislative provisions which seek to provide new opportunity, vocational administrators have taken to heart the half-century-old purposes of "promotion and encouragement" of vocational education. Obviously, there will always be a need for creativity in the administrative process and, consequently, the program director is in a position to fulfill this great potential for making and extending vocational opportunity.

Research and development can, and does, provide some of the insight and new knowledge to administrators to indicate new and improvised ways for program extension. It is the function of research dissemination to provide the communications medium for the application of new solutions and alleviations, in addition to the improvement of the administrative process. With ultimate responsibility for the implementation of change in all aspects of the program, including the research program, program directors have a formidable challenge to their leadership.

Implications for national and state administration. The following studies in this category are reported in this issue of *RV*: (a) Greenleigh Associates report for the Committee on Administration of Training Programs to investigate waste, duplication and inefficiency and make recommendations for correction; (b) Kotz of the Stanford Research Institute studies the planning and programming of occupation education; (c) Rice and Toth of the Ohio State

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EDITOR'S NOTE

Research Visibility is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The *Research Visibility* report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-070633, project 7-0633; "Synthesis and Application of Research Fundings in Vocational Education").

George L. Brandon, professor in residence (Pennsylvania State University) is editor of *Research Visibility*. He is assisted in the preparation of these reports by Research Assistant Anne Ware.

Center examine the role of state education departments with particular implications for state divisions of vocational-technical education; and (d) Swanson, formerly Kennedy Panel of Consultants staff director, looks nationwide at the administration of vocational education at the state level.

Some aspects of local program administration. Cooperative work experience and its organization and operation as studied through the medium of a workshop is reported by Tuskegee Institute's Harris and Sherard. Occupational education and its relation to the role and functions of advisory committees affiliated with the junior-community college have been studied by Riendeau for the American Association of Junior Colleges.

More on cost and benefit analysis. In a Massachusetts setting, Schaefer (Rutgers) and Kaufman (Penn State) edit a preliminary report of a prospectus for change for an Advisory Council on Education. The "change" idea through innovation makes up an important statement of national policy reported by Collado of the Committee for Economic Development as its Research Committee looks at new directions for the American school.

Plant and facilities for shop and laboratory. The study and recommendations of three researchers and investigators with particular concern for (a) planning urban school facilities; (b) a comprehensive concept for planning, and (c) an experimental, mobile facility for instruction in engineering technology are reported from the work of HEW's Chase, Pittsburgh School's Kishkunas, and New Mexico State University's Kleine, respectively.

Educational manpower recruitment and utilization from retired military personnel. This topic is an investigation of the Bureau of Social Science Research reported by Sharp and Biderman.

Formulation of policy for manpower and training. Accompanying the recurrent theme of evaluation and assessment of education, particularly of vocational and technical education, there is no escaping the many persistent voices which demand a new framework for the conceptualization of national manpower, including *educational* manpower, and training doctrine to go with it. Vocational and technical education in its many forms is invariably at the heart of the attention and the discussion. This fact is crystal clear both in the reports of the Committee on Administration of Training Programs, chaired by W. E. Vivian of Electromedia, Inc., and an August 1968 publication of the Task Force on Occupational Training in industry. (*See bibliography for details.*)

The reports of the two committees are highly related to the July 1968 report of the Committee for Economic Development (CED) despite the fact that the latter concentrates its attention on innovations and new directions for the American school. The common denominator of all three reports is their formulation of *national* policy. There is strong documentation from the past that CED statements of policy and recommendation have stirred up attention and action in more than an academic manner.

It is more than a fair assumption that CED's Research and Policy Committee will provoke great discussion (and action) on its recommendations of: (a) better school organization for innovation and change; (b) increased emphasis on basic and applied research and its dissemination and application; (c) cost-benefits and cost-effectiveness analyses, and (d) the establishment of a national Commission on Research, Innovation and Evalution in Education. At least these four emphases and numerous other recommendations of CED are addressed to administrators in the schools at state and local levels for the improvement of American education through the application of program accounting techniques, more extensive use of school facilities (probably daily and yearly), and the investigation (cost and benefits studies) of the extensive utilization of audiovisual equipment, television, computers, and other devices as applied to instruction in the schools on a wide scale.

TOPIC ONE: National and State Leadership

See Bibliography for information on availability of complete studies

Opening the Doors: Job Training Programs. A Report to the Committee on Administration of Training Programs. Arthur Greenleigh. Greenleigh Associates, Inc., New York. February 1968.

This is a study of the administration of training programs financed by federal funds to determine "if there is waste, duplication and inefficiency in administering these programs as many individual programs and, if this determination is in the affirmative, to make recommendations for correction."

In Part One, "waste" is defined as useless consumption or expenditure and use without adequate return; "duplication" is anything corresponding in all respects to something else; and "inefficiency" is an inability to effect or achieve the desired result with reasonable economy of means. Greenleigh reports, "There is waste and inefficiency and—to a much more limited extent—duplication, in the training program as presently operated." He also indicates that:

> The extent to which waste, duplication, and inefficiency exists is not so great that the usefulness of the program is vitiated, although their effectiveness is diminished.
>
> Waste, duplication, and inefficiency are not entirely attributable to administrative shortcomings. These are present, but waste, duplication and inefficiency are often caused or exacerbated by other factors, such as statutory constraints, fiscal limitations, etc.
>
> Waste, duplication and inefficiency are not solely the result of administering the programs as many individual programs. This is an element, but by no means the only one.

Greenleigh makes 25 recommendations which call for statutory and administrative changes. These recommendations are based on the findings from his study and upon a review of relevant documents and publications. The author looked at every level of government which is involved in the administration of training programs. He observed two states, California and Missouri, which had diverse job-training programs and socioeconomic characteristics. The

programs of Oakland, Fresno, St. Louis, and Springfield, which differ in training program activity, size, urbanization and other critical characteristics, were examined in detail. He also got information on job-training programs and Employment Service relationships in six other cities: Boston, Dallas, Huntington, Miami, Phoenix, and Seattle.

Greenleigh was impressed with the useful activity which is evident in the programs and states, "There is nothing wrong with the programs that better structures and better support will not remedy."

Greenleigh's recommendations are operational in nature, i.e., given administrative concurrence and legislative consensus, the necessary changes will come about in a short period of time. Some of the recommendations are for administrative response to a specific problem, in which case operational procedure is not given.

Some of the problems require more experience in order to attain long-range solutions. But the author feels there is sufficient experience to take some kind of intelligent action now. Shortcomings of the manpower programs must be confronted quickly because of the explosive nature of the current situation. Since there are tens of thousands waiting for training, entry must be widened as quickly as possible.

A representative sample of Greenleigh's recommendations are listed below.

1. Single-agency consolidation is not recommended at this time because it would not solve the grave problems of lack of coordination and fragmentation. Awkward as it is, and urgently needing changes short of complete consolidation, the present distribution of program administration does utilize the special expertise of Labor in manpower, HEW in education and welfare, and OEO in the explosive problems of poverty and social disadvantage.

2. A national manpower policy should be articulated, setting forth goals and establishing priorities for various target populations and for different types of training. The policy should be both long range and immediate. It should include a commitment to solve the problems with which manpower policy is concerned. The President's Committee on Manpower should develop the national manpower policy, with the assistance of whatever task force it designates.

3. The lack of advance planning and the fragmentation of training efforts at the local level are among the clearest facts to emerge from this study. Planning grants should be made available to state and/or local governments for the development of comprehensive manpower plans, incorporating education, work and training programs with the necessary sequential linkages, and related manpower services.

4. Continuing evaluation should be provided to (a) gauge progress and identify shortcomings at the project level, as well as the program level; (b) serve as a basis for national policy decisions on allocation of resources; and (c) to guide administrative decision on re-funding individual projects.

5. Inservice training should be available for manpower program administrators (including the staff of the Employment Service) at the federal, regional, state, county, and local levels along lines which would most effectively strengthen staff capability for program implementation, interchange of information about manpower problems and program techniques, and coordination among programs, agencies and levels of government.

6. Funding procedures in all programs should be streamlined with a view to simplification, reduction in the number of steps required, delegation of decision-making powers of federal agencies below the national level to the extent feasible, and reduction in the amount of time required for processing.

7. Two new linkages are recommended between the vocational education system and the local job-training complex: (a) a substantial amount of funds authorized under the Vocational Education Act of 1963 should be earmarked for "special needs" and used by the vocational education system in conjunction with comprehensive work and training programs; (b) the vocational education in-school programs should be offered to youth outside the school system, via an outreach program, and in the form of cooperative education (i.e., institutional training plus part-time training-related employment).

Part Two of this final report is intended for those who desire to have complete documentation of what was done and what was found. It also contains a series of tables which were developed to explicate the data generated in the course of making the study.

A Nationwide Study of the Administration of Vocational-Technical Education at the State Level. J. Chester Swanson. University of California. Berkeley. August 1967. (Volume One of this report contains a description of the study and Volume Two contains the appendixes thereto.)

Is vocational-technical education keeping pace with progress being made in other areas of education; can its current policies, programs and procedures meet the needs of our progressive economy? This study attempts to gain a view of the current status of state-level administration of vocational-technical education. The stated purpose of the project was "to provide pertinent, accurate information for use, primarily, by state agency staffs in their efforts to meet the major challenges confronting them." Another purpose was to develop instruments "to expedite improvement in the scope, quality and coverage of vocational and technical education in local schools, by increasing the effectiveness of state agency leadership, service and administration in this field of education."

To facilitate planning and implementation of the various complex parts of the study the Program Evaluation and Review Technique (PERT) was applied to the project.

Data were collected during visits to 40 states and Puerto Rico. There was an initial "readiness" visit during which a project staff member described the purposes of the project and requested the cooperation of the chief state school officer, the state director of vocational education and some of their staff in general and vocational education. This was followed by a letter describing the upcoming data collection visit which was held about a month later. At the time of this second visit data were obtained from the Group Interview

Guide, individual interviews, personal record of work activity forms, and other documents and materials.

The project was divided into five major studies, each designed to meet a specific objective. They are briefly summarized below.

Current Status of the Organization for Administration Of Vocational-Technical Education at the State Level

The objective of this sudy was to "prepare a detailed description of the administration of and services provided for vocational-technical education in each state, indicating the differences among states in organization, personnel and services provided and identifying current trends in administrative organization functions and activities."

The study was based on data collected during the 1965-66 and 1966-67 school years, the latter being incomplete and the former being inconsistent since they were obtained from different sources in the different states. The study indicates that vocational education is, in most states, an integral part of the total state education programs.

The ratio of state staff to teachers varies from 1 to 240, to 1 to 9. Public expenditures for vocational-technical education for the school year 1965-66 were 150 percent higher than expenditures in 1962-63. This is not a complete report, as it covers only those activities which conform to the definition of vocational education in Public Law 88-210 (Vocational Education Act of 1963).

Study of Perceptions of State-Level Administration Of Vocational-Technical Education

The objective of this study was to identify and analyze perceptions of the roles and functions of state agencies for vocational-technical education and what they should be. Data were obtained for this study from the Group Interview Guide which was administered to 1,783 persons in 38 states. Three questions were examined: (a) How is the State Department of Vocational Education (SDVE) viewed in terms of inspection-regulation and leadership-change? (b) What are the respondent's perceived actual and ideal roles of the SDVE? (c) What are the actual and ideal relationships between leadership-change, inspection-regulation and involvement? The data obtained were computer processed and analyzed; 10 clusters were defined, whose reliability coefficients fell between .95 and .80.

A second part of this study depended upon information obtained in individual interviews of 432 people in 38 states and Puerto Rico. Four areas were investigated: the public image of SDVE, the SDVE staff, SDVE relationships with other agencies, and the quality, availability and scope of vocational-technical education programs.

The results from this study of perceptions indicate there are significant differences among groups (SDVE, SDE, other educators, lay policy makers, and other state agency personnel) which may have geographic implications.

Analysis of Selected Professional Staff Positions Within the SDVE

Sixteen states participated in this pilot study to analyze activities of selected professional staff positions. A Personal Record of Work Activity was designed and used to determine "the kinds of people with whom professional staff personnel interact; the kinds of actions or decisions in which professional staff personnel are involved; and the focus of concern in carrying out a particular action." This instrument was filled out for 14 consecutive days by the 105 participants and the results were data processed. Swanson now believes that with further investigation a reliable technique for self-analysis can be developed.

Development of a Format and Criteria for Self-Analysis Of State Divisions of Vocational-Technical Education

This study was "to improve the scope and quality of vocational-technical education by strengthening agencies responsible for state-level administration of such education." This was to be done by designing and field testing of a format and criteria for self-analysis by the state agencies for vocational education. A workshop of state directors was held to establish some guidelines and identify the criteria that should be used. The instrument was prepared and field tested and is being subjected to further revision and refinement. The author feels this type of instrument is appropriate and will facilitate the improvement of vocational-technical education as a result of improved state-level administration.

Expenditures for Vocational-Technical Education

The purpose of this fifth study was to analyze the expenditures for vocational education through the state agency for public school programs related to federal funds provided to states, with special emphasis given to changes after the passage of the Vocational Education Act of 1963. Expenditures of 1962-63 and 1965-66 were compared in detail for 24 states. Two specific areas of concern were (a) state expenditures for local, area vocational schools, colleges or institutes; and (b) the financing of state agencies for vocational education—administration and supervision, teacher education and research.

This study, as the first phase of a proposed three-year project, reports few definite conclusions. Suggestions for further research accompany the discussions of each of the five studies.

The 410 page second volume of this report contains detailed appendixes:

- APPENDIX I: A Taxonomy of Educational Change (including Leadership and Involvement)
- APPENDIX II: PERT—General Information and Master Schedule Reports
- APPENDIX III: Tabulation of Data for the Study of Organization for the Administration of Vocational-Technical Education
- APPENDIX IV: Supplementary Materials for the Study of Perceptions of State Level Administration of Vocational-Technical Education
- APPENDIX V: Supplementary Materials for the Analysis of Selected State Vocational-Technical Education Staff Positions
- APPENDIX VI: Format and Criteria for Self Analysis of State Agencies for Vocational-Technical Education

The Emerging Role of State Education Departments With Specific Implications for Divisions of Vocational-Technical Education. Edited by Dick C. Rice and Powell E. Toth. The Ohio State University, Columbus. 1967.

This is a report of an interdisciplinary National Conference on State Department Leadership in Vocational Education which was held Feb. 27—March 2, 1967. It contains nine background papers on major forces and factors relevant to state departments, and three papers indicating major implications for the role of the state departments and vocational education divisions. The editors feel that leadership needs in these areas can be alleviated "in part by developing effective inservice and preservice education programs for leadership development."

Listed below are the authors and the titles of the papers which were presented.

- "The Changing Character of General Population: Implications for Education," by Philip M. Hauser and Martin Taitel, University of Chicago.
- "Projections of Changing Student Population," by Eugene P. McLoone, Stanford University.
- "The Changing Occupational Structure With Implications for Education," by Leonard A. Lecht, National Planning Association.
- "Obtaining Optimal Education Opportunity for Disadvantaged Groups," by Robert D. Hess, University of Chicago.
- "State Government and Education," by Lawrence Innaccone, New York University.
- "The Expanding Role of Federal Government in Education with Implications for State Education Departments," by Nicholas A. Masters, The Pennsylvania State University.
- "Emerging Organizational Structures for Facilitating Educational Change with Implications for State Education Departments," by Francis A. J. Ianni, Teacher's College, Columbia University.
- "Emergent Functions and Operations of State Departments of Education," by Ewald B. Nyquist, The University of the State of New York, The State Education Department.
- "The Administration of Vocational Education as an Integral Part of a State Department of Education," by Byrl Shoemaker, The State of Ohio Department of Education.
- "The Emerging Role of the State Department of Education," by Ronald F. Campbell, University of Chicago, and Gerald E. Sroufe, U.S. Office of Education, Washington, D.C.
- "The Emerging Role of State Departments of Education With Implications for Vocational Education," by Gerald B. James, Rockingham Community College, Wentworth, North Carolina.
- "A Strategy for Strengthening State Education Departments Through Research, Development, and Training," by Jack A. Culberton, University Council for Educational Administration, Columbus, Ohio.

The final chapter of the report, written by Dick C. Rice, is a summarization of the discussions which were held during the conference. The major implications were described in terms of Coordination of Educational Efforts, Program Initiation, Evaluation and Maintenance, and Specific Implications for Vocational-Technical Education Division.

Coordination of Educational Efforts

As the emerging role of the state education department was discussed, it became apparent that a predominent feature was the responsibility for coordination of the whole educational system within the state.

Since almost 70 percent (and in some areas, 90 percent) of the youth will not continue their education past the high school level, public school programs are required to educate these people to become productive. Vocational-technical education, then, has as its goal producing workers *and* educated Americans. To insure that, in the process of being assimilated at the state education department level, vocational programs are not de-emphasized in favor of other priorities, several suggestions are presented to develop effective communication and cooperation between state education departments and vocational education division.

These are: (a) legislation requiring practical acquaintance with the world of work by each student leaving the secondary school; (b) inservice education of teachers and state education department members; (c) community conferences to help local leaders and laymen understand the role of vocational education in the total educational program; (d) curriculum planning and development with other state education divisions to implement vocational education processes at all educational levels; (e) acquisition of state funds to finance development of local programs and materials not bound by federal categorical aid programs; (f) development of new organizational structures and avenues for communication at the state level to coordinate some functions in other state education divisions and vocational education divisions, and to insure effective communication and coordination of activity; and (g) organization of department-wide educational planning agencies to identify educational goals and objectives, to identify and clarify problems, to search for and describe alternative solutions to aid decision makers in setting priorities, and to develop long-range and short-range programs for solving problems.

The participants at the conference also believe in the importance of interstate and inter-institutional research, teaching and development activity for vocational education.

Program Initiation, Evaluation and Maintenance

The participants feel that state department leadership is essential for evaluating and maintaining standards in school programs and for initiating new programs in local schools. There are five main areas in which the leaders should be involved: (a) they should be politically sophisticated and be involved in influencing legislation; (b) they should organize long and short-range planning and programming in order to insure that all resources will be properly utilized; (c) they should be directed toward attracting and retaining high quality personnel by upgrading salaries and benefits, extending personnel services, and providing inservice and preservice education programs; (d) they should

stimulate research and be receptive to new information and processes, but should not have a major role in the actual conduct of research; and (e) they should assess the services presently being provided to schools in the light of goals and objectives.

Specific Implications
For Vocational-Technical Education Division

There are five areas with specific implications in each.

Political implications

State divisions of vocational education (SDVE) should understand their existing relationships with the legislatures.

The SDVE should critically review existing state law relating to vocational education.

Leaders in SDVE must find ways to utilize the power of the total educational system in state policy development for vocational-technical education.

Professional personnel policy implications

The personnel needs of the SDVE indicate that new sources of professional personnel should be developed.

Inservice education programs for SDVE professional personnel must be implemented.

SDVE should begin working with selected universities and colleges to develop preservice state-leadership preparation programs.

Implications for research

The SDVE should identify needed research projects and provide the necessary incentives to encourage competent research institutions to undertake the projects.

In keeping with its role in the improvement of instruction, the SDVE should develop cooperative relationships with industry, research and development institutions, and regional educational laboratories for the implementation of promising pilot and demonstration projects throughout the state.

Part of the on-going research program of the SDVE should be concerned with developing data systems for educational planning purposes that are compatible with those of other SDVE for providing information vital to regional and national program development.

Implications for organization

The SDVE must find ways to become part of the overall communication network within the state department of education.

More use should be made of temporary or task-oriented groups across specialty lines both in the SDVE and across division lines in the department.

The SDVE should assess its functions and remove or meld any unnecessary duplications of functions performed elsewhere in the department.

The SDVE should forge stronger cooperative ties with other local, state, federal, and private agencies and programs concerned with meeting the increasing need for vocational education.

Program planning and evaluation agencies should be developed in SDVE.

Implications for improvement of instruction

SDVE should lead in the development of major breakthroughs in the vocational-technical education curriculum and give particular attention of the concept of vocational education as part of the process of education at all levels of schooling.

Incentives, e.g. financial and status, controlled by the SDVE should be used to stimulate attainment of superior standards of performance in local programs.

Leaders in SDVE should get out of the business of classroom supervision, and become more involved in demonstration programs and inservice education for larger groups of teachers.

Occupational Education: Planning and Programming. Edited by Arnold Kotz. Stanford Research Institute, Menlo Park, California. September 1967.

This report is a summary of surveys of 6 states and 11 communities and of a conference which dealt with new approaches to planning and programming occupational education. Position papers are presented by experts from various fields. Volume One contains statements related to the identification of objectives and goals, and structuring of alternative programs to achieve them. Volume Two contains statements on program structure and budgeting, benefit/cost analysis, and programs of evaluation and organization.

In Kotz' transmittal letter to the Commissioner of the U.S. Office of Education he indicates the scope and findings of this research study:

> The research found areas where significant improvements in policy formation and in planning concepts and methodology are essential if allocation of federal, state and local resources is to contribute in an optimum manner to multiple objectives and goals. The objectives include: development of vocational competencies and general capabilities for life and social adjustment; development of a trained work force to meet the job demands of the private and public sector; contributions to economic growth and development; bringing the disadvantaged productivity into the main-stream of economic life; accommodating other student interests; and satisfying many other demands placed on the educational system.

Kotz identified 11 primary areas of concern which are briefly described below.

1. There is confusion among legislation at national, state and local levels as to the goals of particular programs.

2. There are many alternative ways to attain objectives, yet there are presently insufficient data on which to base intelligent choice of the best way to achieve local, state and national objectives. Not enough people recognize the importance of having alternative courses of action; rarely are benefit/cost analyses applied in an attempt to compare alternative strategies.

3. There should be established priorities in the approved programs to avoid thoughtless allocation of resources to marginal programs.

4. Expenditures are made for facilities without an economic analysis of their role in the system. For example, a different resource allocation would be required for a plan

to provide vocational schools at the secondary level than for a plan to defer occupational choice to a post-secondary period.

5. Department of Labor surveys of job vacancies and demand produce forecasts which are often not timely or of long-range value, and are thus of little use to vocational educators. Joint agreements between the Departments of Labor and of Health, Education, and Welfare at national and state levels indicate that rapid progress can be attained only with the use of joint concepts, methodology and working and funding arrangements.

6. More creative leadership is called for in planning and programming than that produced by the "so-called state plan" required by the U.S. Office of Education. The state plan is only an agreement by the state to meet federal conditions to enable it to receive federal grants.

7. There is not now available sufficient information for adequate planning, decision-making, and program evaluation. In order to obtain this information for educational managers, automatic data processing systems must be installed which will utilize the necessary data inputs.

8. Although it may have been beneficial to put the emphasis on facilities to be built, teachers to be added or trained and students to be enrolled in the period of assigning resources after the Vocational Education Act of 1963 was passed, it is now necessary to apply modern technology and planning, programming, and decision-making processes to occupational education. These planning processes are aimed at "the disadvantaged and other students and their placement in gainful employment and the behavioral outcomes and other goals, including life adjustment as well as vocational adjustment."

9. Educators should rely upon experts—economists, systems and operations research analysts, and sociologists—outside the educational establishment who have planning and analytical skills which can be used to solve educational problems.

10. State and major community levels should have an overall planning system which integrates objectives and goals, program structure, budget, evaluation, special analytical studies, and program analyses. This will provide needed assistance for educational administrators in the accomplishment of educational objectives.

11. The concepts and methodologies in this report are discussed in terms of occupational education, but they are broad enough to be applied to planning and decision-making at elementary, secondary and higher education levels.

TOPIC TWO: The Local Administrator

See Bibliography for information on availability of complete studies

Workshop on Organization and Operation of Cooperative Work Experience Programs in Trade and Industrial Education. August 14-September 1, 1967. James N. Harris and Austell O. Sherard. Tuskegee Institute, Tuskegee, Alabama. 1967.

This study was planned to inform vocational-technical teacher-educators, coordinators and supervisors from all parts of the United States of recent developments in cooperative education. There were three specific objectives of the workshop: (a) to develop an awareness of the need for promoting cooperative work experience as planned programs to maximally utilize the resources of educational institutions and local industry; (b) to develop an ability to implement programs from available resources; and (c) to develop the ability to effectively evaluate cooperative work experience programs.

One of the workshop consultants, George H. Miller, director, Cooperative Education Program, University of South Florida, Tampa, spoke on "Organization and Administration of Cooperative Work Experience Program." His discussion was geared toward setting up a program at the university level, but he feels that the ideas can be used in planning for secondary school, junior college, technical school, or any other kind of educational institution.

Miller said that the success of a cooperative education program depends upon the understanding and cooperation of the administrators of the participating institution, the employer representatives, the guidance people, and the general public. These people must realize that at all times those participating in the program are to be considered full-time students. Thus the institution is able to keep the student under its jurisdiction at all times.

The cooperative student should be given preference in signing up for class sections that he needs because of his work schedule; he should be able to use the library facilities, even by mail if necessary. The faculty should all be aware of the program and the demands it places on them and on the students. Miller suggests the use of an advisory committee to insure that the faculty is always kept informed, and the use of faculty field trips to observe the student on the job in a trainee position. A newsletter or regular personal interviews can be used to keep in close communication with the students.

Miller stressed the importance of being sure that employers—from management, personnel office, down to the supervisory level—are aware that they have a responsibility to understand the program and as a result to properly utilize the students assigned to them. The community can be reached through the use of releases sent to local newspapers and talks to civic and other local clubs.

J. F. Ingram, another consultant, is director of Vocational Education, State Department of Education, Montgomery, Ala. The title of his paper was "The Role of State Education Departments as Related to Cooperative Education." Ingram described the role of the state education department as one providing leadership and encouragement to schools and teacher coordinators participating in such programs. He feels it is the duty of the state education departments to set

minimum standards for cooperative work programs and particularly for the selection of teacher coordinators.

Other consultants spoke on the objectives of cooperative education, its advantages and disadvantages; a model program was discussed and guidelines presented; and industry's attitude toward cooperative education was discussed.

The Role of the Advisory Committee in Occupational Education in the Junior College. Albert J. Riendeau. American Association of Junior Colleges, Washington, D. C. 1967.

Successful occupational programs depend upon cooperative efforts by industry and education. The advisory committee was formed to give order to this cooperative planning, and this document was written to serve as a guide for those whose responsibility it is to develop and maintain occupational education programs at the junior college level.

If post-high school institutions are to continue to grow to keep up with advancing technological changes, educational and community leaders must understand the nature and objectives of such institutions. Based on recent past performance, the two-year institution is ideally suited to use innovative devices and will thus be able to assume a leadership role in higher education.

The Vocational Education Act of 1963 provides for a State advisory council to consult with the State board in carrying out the State plan as a prerequisite for allotment of federal funds. Further indication of the approved utilization of advisory committees is shown in the following statement:

> The program of instruction will be developed and conducted in consultation with potential employers and other individuals or groups of individuals having skills in and substantive knowledge of the occupation or occupational field of the occupational objective.

The function of an advisory committee will determine its composition and size; however, there are certain community forces to be considered in the selection of committee members. Industry representatives should be familiar with the institutional goals; persons with other than immediate concern with a specific occupation should be included, e.g., academicians, professional people, representatives of government, and school representatives all have an interest in occupational education. This is an excellent opportunity to include minority group leaders in an activity that involves the entire community—with the possibility that increased understanding will result. Educational leaders of the institution should always be kept informed of the activities of the committee. There are several civic and other organizations interested in occupational education—the chambers of commerce, labor unions, Y.M.C.A. chapters, adult education organizations—which are sources for membership on the committee.

Some reliable sources for occupational information are planning departments, employment services, chambers of commerce, state and national sources of information (U.S. Office of Education), and industry councils.

To meet the varied demands of junior colleges, there are three major different types of advisory committees: (a) the general advisory committee function is to review the total occupational education programs being offered in the community and to advise on new requirements and priorities; (b) the occupational advisory committee function is to advise junior college administrators regarding institutional programs in specific trades, crafts, or occupations; and (c) the joint apprenticeship committee function is to perform administrative services pertaining to apprenticeship standards and on-the-job work experiences.

Riendeau discussed in detail the process of selecting members for advisory committees, including the qualifications of prospective members and the manner in which the appointments should be handled. He has suggestions for length of service on the committee, orientation of members, and the number of members necessary; the duties of the committee chairman, secretary and junior college representative are described in detail. Giving recognition to committee members is indicated in several ways. Realizing the importance of a well-planned meeting and proper leaderhsip to insure purposeful sessions of the committee, Riendeau has devoted an entire chapter to a discussion of how to attain this goal through correct procedures and attitudes. This is followed by a chapter on how to implement advisory committee recommendations. The Appendix contains sample invitational letters, meeting notices, minutes, agenda, Advisory Committee Handbook, and certificates of appreciation.

TOPIC THREE: Cost/Benefit Analysis

See Bibliography for information on availability of complete studies

Vocational-Technical Education. A Prospectus for Change. Edited by Carl J. Schaefer and Jacob J. Kaufman. The Commonwealth of Massachusetts, Boston. 1968.

This publication contains the major papers presented at a symposium on vocational-technical education in Boston, Nov. 28-29, 1967, which was sponsored by the Massachusetts Advisory Council on Education. This is an interim document and will be followed by a final report.

There are papers presented by Carl J. Schaefer, Rutgers, The State University; Vincent P. Lannie, New York University; James W. Altman, American Institute for Research; Marvin B. Sussman, Case-Western Reserve University; Mary Jean Bowman, University of Chicago; Ivar Berg, Columbia University; Raymond Hummel, University of Pittsburgh; Benjamin Shimberg, Educational Testing Service, Princeton; Richard A. Gibboney, University of Pennsylvania; Ernest Minelli and Thomas M. Benton, Central Michigan University, and Jacob J. Kaufman, The Pennsylvania State University.

In the introduction, Carl J. Schaefer states that these papers were prepared to provide vocational educators with

information from what has been called the related disciplines. This was done because of the belief that vocational education should be "an integral part of a well-rounded program of education aimed at the development of youth for full participation in society." The history of vocational education, manpower needs, the role of guidance, curriculum development, administration, and teacher preparation are discussed.

Mary Jean Bowman, in a paper titled "Decisions for Vocational Education: An Economist's View," defines economics as the science of decision-making with two main variants: benefit/cost analysis and analysis of cost-effectiveness. She discusses in detail monetary benefit/cost assessments of vocational schooling, reduction of drop-out rates viewed as end or as means, human resource production functions, human resource formation at school or at work, and the manpower forecaster and decisions for vocational education. She believes that vocational preparation should encompass foundation subjects such as language, mathematics and basic science. She also recommends that economists can best act as advisers to educators in performing a systematic examination and assessment of alternatives in terms of specified goals and resource limitations.

Richard A. Gibboney indicated in "The Social Context, Poverty and Vocational Education," that "Until America decides to come to grips with the social crisis posed by poverty and unemployment, vocational programs will always be inadequate to meet the social and educational needs posed by these social problems." He states that it is crucial that vocational educators insure that state and federal legislators remain aware of this relationship.

Jacob J. Kaufman, co-director of this study, summarizes the discussions held during the seminar and presents the general consensus that there is a need to develop an educational curriculum to meet the broad occupational requirements and interests of the youth, particularly those in secondary schools.

Innovation in Education: New Directions for the American School, A Statement on National Policy by the Research and Policy Committee of the Committee for Economic Development. Emilio G. Collado and others. Committee for Economic Development. New York. July 1968.

"A more receptive attitude toward new ideas must be cultivated in school administrators—at the state as well as the local levels—in the schools of education, and among parents. Methods of determining what is useful and accelerating the adoption of proven ideas may well be the greatest need of all in our educational system."

This statement focuses on elementary and secondary school problems of instruction because (a) in any national effort to improve our schools the decision-makers at all levels of education, and the public as well, must give immedate attention to the principles and methods of teaching and learning; and (b) such improvement is a precondition for achieving better education for all—the poor and the affluent, the culturally deprived and the advantaged. Often school districts and schools are handicapped by outmoded organization, overcrowding and understaffing. The American people expect much from their schools and so ways must be found for improving them.

Recognizing that the most serious failures of American education are produced by failures of society—particularly those found in schools in areas of poverty and cultural deprivation and those segregated by color and race—this statement does not attempt to present all the problems faced by schools, nor the solutions to them. On the basis of investigations, however, the statement concludes that there are four "imperatives" today:

1. The American school must be better organized for innovation and change.

2. There must be an increasing emphasis on both basic and applied educational research and on the dissemination and practical application of that research. The useful and effective must be distinguished from the nonproductive and wasteful through developmental studies employing research findings.

3. School systems must continuously employ the result of cost-benefit and cost-effectiveness analyses in order to allocate effectively the resources available to education and to distinguish among programs of high and low priority.

4. There should be established a national Commission on Research, Innovation, and Evaluation in Education to encourage intensified and widespread research, development and evaluation bearing on all aspects of education as a means to more effective methods of instruction.

The costs and benefits "imperative" is discussed in some detail below.

"Cost-benefit analyses provide the means for comparing the resource (costs) to be employed on a specific project with the results (dollar benefits) *likely* to be obtained from it. Cost-effectiveness analyses, on the other hand, are designed to measure the extent to which resources allocated to a specific objective under each of several alternatives *actually* contribute to accomplishing that objective, so that different ways of obtaining the objective may be compared."

The Committee believes that the reorganization of instructional staffing can be attained at a cost per pupil which is close to present spending; however, precise estimates are not available. Estimates should be made of several factors—costs of establishing systems of research, improving teacher education, installing audiovisual or other instructional equipment, etc. To examine such an approach, the Committee has made comparisons of the costs of installing a large-scale system of television and computer-assisted instruction in the public schools.

The Committee states that it is possible to provide broad outlines of the system of information and analysis required to gain improvements in the process of resources allocation. There should be statewide systems to collect information on student and teacher characteristics and financial allocations in districts; in larger school districts or in state departments of education, there should be offices of analytical studies to engage in model building, sensitivity analysis, and forecasting—or planning, programming, and budgeting; and there should be a proper setting for the conduct of serious

high-grade applied research in the educational system.

School administrators are urged to explore the application of program accounting techniques in order to identify costs in school systems and to take advantage of cost comparisons. For example, a spending proposal such as raising teachers' salaries could be assessed against other spending possibilities, e.g. determining what this sum would purchase in terms of programs to retrain teachers. Another suggestion is that school districts could examine the possible benefits that will result from using school facilities after hours for adult education or other programs, or lengthening the present school year.

Although the Committee urges the development and use of educational systems, it believes that impressive gains will occur only as school districts make innovations in their programs. Better information is needed about why some practices fail in some schools and succeed in others. The Committee believe that states and school districts should have systems of financial and other rewards for teachers and administrators who produce innovations which increase the quality and productivity of schools.

What will massive use of instructional resources cost? The consulting firm of Booz, Allen & Hamilton made an independent analysis of the cost of adopting television and computer-assisted instruction in the public schools on a nationwide scale. The following variables were recognized as making it difficult to assess definitely the cost-benefit ratios: the use that schools will eventually make of the various media; the manner in which the material will be produced, for what purposes, and in what quantities; the degree to which costs in new technologies will be offset by raising the productivity of instruction and redeploying present resources. However, it is felt that the Committee's cost studies yield significant data for those interested in improving instruction.

As a basis for the cost studies, a hypothetical model of a school system was designed having (a) 100,000 students in grades one to 12; (b) 152 schools of 24 classrooms each; (c) 30 pupils per elementary class and 25 per secondary class; (d) continuous operation through a 6-hour school day for 150 of the 180 day school year; and (e) one hour of instruction per student per day through television and one hour through computer-assisted instruction.

The projections indicate that the annual cost of providing television programming will range from $800,000 to $4.6 million; the annual cost of providing computer-assisted instruction could range from $9 billion to $24 billion.

The Committee strongly recommends that broad-based studies be made of the costs and benefits that can be expected if the various technologies involving audiovisual equipment, television, computers, and other devices are applied to instruction in the schools on a wide scale. Such studies should take into account the benefits that may be obtained through increasing the effectiveness of the learning process at the same time that they weight the effects of the new resources in terms of the organization of instruction, teacher pay schedules, productivity, probable use by teachers, and other vital matters.

TOPIC FOUR: Plant and Facilities

See Bibliography for information on availability of complete studies

A Comprehensive Concept for Vocational Education Facilities. Louis J. Kishkunas. Pittsburgh Board of Public Education. June 1967.

To provide flexibility, facility planning now has to be based on the student station, as opposed to the classroom unit; also facilities should be capable of modification on an activity-to-activity basis rather than on a year-to-year basis. Kishkunas attempts to answer the following questions in this study: (a) What forms of instructional techniques may evolve from current curriculum innovation efforts? (b) What planning techniques will be sensitive to the facility requirements of new forms of instruction? (c) What type of facilities will be responsive to the needs of instruction as specified through the application of more sensitive planning techniques?

Kishkunas discusses the major themes of curriculum innovation, and he suggests the use of a student activity module which is a unit of student experience involving space, materials, equipment, books, films, lectures, and discussions with teachers and other students.

Viewing the facility planning process as part of the overall educational planning process, a computer program would progress in three stages: (a) a model to analyze class activities; (b) a model to analyze groups of related class areas; and (c) a model to develop space layouts. For example, this would involve feeding detailed information about activities and activity sequences, including number of students, equipment, allowable repair time, and estimated time to complete tasks into a computer which would then simulate what could be expected to happen in the classroom under various conditions.

Kishkunas describes in detail the data that would be fed into the computer in order to give the planner enough information to accurately plan a facility. Using a computer, a spatial layout of an entire school could be presented in a very short period of time.

The author gives a full description of an environmental system that is flexible enough to meet the demands of several approaches to instruction. He says that this is important because in this "age of rapid change it is probable that new alterations will have to be made on recently constructed facilities. . . . If vocational education is to keep pace with new developments and to teach specific skills that are up to date, significant changes in equipment and facility layout must be made on a relatively short-term basis." As an example of creating a truly responsive facility system, he presents in detail a study of the acoustics problem. He also includes several diagrams which show details of solutions to acoustical, lighting and space problems.

Problems in Planning Urban School Facilities. William W. Chase. U.S. Department of Health, Education, and Welfare. Washington, D.C. 1964.

This study identifies problems inherent in planning school facilities in metropolitan central cities. Data for this study were obtained from a group discussion of school planning officials from metropolitan central city school systems in 13 U.S. cities. Out of these discussions nine major problem areas were identified and were then analyzed in terms of subproblems and relationships between the major problem areas. A guide, constructed on the basis of this information, was used in interviews with general superintendents and/or the associate superintendents who were in charge of planning school facilities in the 50 largest cities in the U.S.

Because the main purpose of this study is to identify problems in planning school facilities and the relationship of the problems to metropolitan city planning in general, no numerical value was given to responses, nor were solutions proposed for the problems. Chase points out that this study emphasizes that planning school facilities has to be part of the overall urban planning, and that planning officials should never disregard the overall planning function.

1. ***Urban Renewal Projects.*** The financing of facilities construction can be seriously affected by the removal of property from the tax rolls until a renewal project is completed. One-third of the school officials stated that even though this is a temporary situation, it occurs at the time when construction is indicated. The majority of the school officials indicated there are few problems in cooperative planning between them and urban renewal officials; however, they are concerned with the unpredictable demands caused by uncertainty of the completion dates of redevelopment projects. Two-thirds stated that population shifts caused by urban renewal projects caused problems because they were frequently not able to predict where the displaced people would move. One-half the officials remarked on the difficulty of obtaining land for school sites that were affected. One-third of the respondents expressed concern over the problems caused by inconsistent zoning regulations. On the other hand, the rules and regulations surrounding urban renewal projects are considered specific and clear cut.

2. ***Expressway development.*** Almost half the school officials feel their boards of education had problems with delays in payment for school-owned land that was designated for expressway development. Although land values around expressways generally increase in value, the interim period before completion of the expressway is characterized by loss of revenue by removal of property from the tax rolls, resulting in reduced amounts of money being available to the school district. Half the officials also feel they had difficulty in planning because they did not have adequate information on expressway development.

3. ***Zoning regulations and housing codes.*** Problems arise in the interpretation and enforcement of these regulations. For example, a school system may encompass more than one civil district and find itself beset with conflicting zoning regulations. Or there may be an unanticipated influx of families into a neighborhood which would not occur if the regulations were strictly enforced.

4. ***Building codes.*** Although recognized as being necessary for public health and safety, school officials note that the inconsistencies and outdated nature of many codes cause problems in interpreting them for new construction, older buildings and temporary portable buildings. Most of the officials reported that they follow the more stringent interpretations, but still feel special code requirements should be developed for them.

5. ***Construction Costs and Financing.*** High costs of labor and material often limit building design and result in inefficient school facilities. Respondents also reported the difficulty in establishing valid cost comparisons, and the problem of relating construction cost to educational efficiency. More than half the respondents had problems in designing flexible and adaptable school facilities, and in obtaining high quality construction at reasonable cost.

6. ***Educational program planning.*** Respondents recognized the importance of visualizing future educational programs and ways in which they can be accommodated. Buildings built today are expected to be in use for another 75 to 100 years and, thus, they should be easily adaptable to future programs. Almost two-thirds encounter problems in designing rooms to accommodate new teaching procedures and aids; several feel more research should be done to prove the worth of these new ideas before indulging in expensive remodeling of existing buildings.

7. ***Population movement.*** With the shift of the middle class to the suburbs, the central cities are rapidly becoming the home of the impoverished, and nearly all the school officials feel that the resulting destruction of heterogeneity of function and purpose is a major problem.

8. ***Site limitations.*** More than three-fourths of the respondents feel land acquisition is a serious planning problem, generally because of the scarcity of land in good locations.

9. ***Community relations.*** The community must understand what is desired in the total education program so that it can act intelligently in areas where general public approval is necessary. Thirty percent of the school officials noted difficulty in efforts to inform other government agencies and the public about programs; half had difficulty in describing planning problems to the public and felt this was largely due to the general apathy of the citizens.

Development and Testing of an Experimental Mobile Instructional Facility for Applied Courses in Engineering Technology, by Louis W. Kleine. New Mexico State University, Las Cruces, New Mexico. May 1968.

This project assesses the educational and economic feasibility of providing mobile laboratory facilities for conducting classes in applied electricity at two-year branch colleges of New Mexico State University.

A 40-passenger military surplus bus was purchased and remodeled, putting in work benches, instrument shelves, fluorescent lighting of 70 footcandles, and 115 volt AC electrical outlets. There were eight work stations of 24 square feet each, to accommodate 16 students. The equipment that was installed was comparable to that in the parent institution; the total cost for equipment was $7,456. All the units were placed on a non-rigid work bench in order to keep shock and vibration to a minimum.

During the 1966 fall semester, the mobile unit travelled between the branch colleges at Alamogordo and Carlsbad; there were trained instructors at each location due to the great distances between them. The same text and course outline were used at all locations. A pre-test and post-test were given to the 29 students taking the course at Alamogordo, Carlsbad, and at University Park where the permanent facility was located. The course was again given the following semester at Carlsbad and University Park; there were not enough students to take the course at Alamogordo that semester. This time, 20 students were given a pre-test and post-test.

Using an analysis of co-variance techniques, the investigators found that in the first operational period there were no significant differences in performance on final achievement tests between the students using the mobile facility and the students using the permanent facility. However, for the second operational period, the students using the permanent facility had significantly higher scores. The author suggests that if there were more students taking the course and if one instructor were used for both the permanent and mobile facilities, meaningful variables could be maintained.

Costs to be considered for using a mobile facility in comparison with a permanent facility include facilities, maintenance, depreciation, distance for mobile unit movement, and the use factor (e.g., number of hours per day in actual use). Kleine reports that the comparative cost ratio would be four or five to one when using a new bus, and two or three to one when using a mobile house-trailer type facility. Thus, when there are no permanent facilities and large amounts of funds are unavailable, and where there is a low use factor, the mobile unit is most economical. The amounts expended for this study were: Operational costs (not including salary), 50 cents per mile; modification costs, $1,000; equipment costs, $7,456.

A Guide for Planning Facilities for Occupational Preparation Programs in the Machine Trades. Milton E. Larson. The Ohio State University, Columbus. September 1968.

This guide was designed for use by those personnel responsible for planning occupational programs in the machine trades, and it can be used in the preparation of educational specifications. A fundamental concern in planning vocational and technical education facilities is assuring that their construction is guided by educational requirements and that they are adaptable and flexible to allow modifications and programmatic changes during the lifetime of the building.

According to Larson there were certain fundamental guiding principles to be kept in mind when planning facilities to house programs in machine tool operation, machine shop, and tool and die making. Some are listed below.

1. The educational program is the basis for planning space and facilities.
2. Space and facilities should be planned to accommodate changes in the educational program.
3. The program is planned to serve the needs of a variety of groups in the community.
4. Space and facilities for the program can be extended through the use of community resources.
5. Expanded programs to reach not only the average and those who are college bound, but also the unusually gifted, the physically handicapped, the mentally retarded, and the culturally deprived are needed in vocational machine tool operation, machine shop, and tool and die making.
6. Cooperation among teachers in developing interdisciplinary units or courses is encouraged by the proximity, flexibility, and convenience of classrooms and work areas where teachers can plan together and produce materials.
7. Safe and healthful housing should be provided for all students.
8. Mobile equipment, used where practical, with convenient space for storing it, adds to flexibility and often results in more efficient use of space.
9. The effective use of mechanical teaching aids, such as projectors, screens, recorders, and other devices, will depend upon the accessibility and convenience of storage.
10. Movable partitions, screens, folding doors, room dividers, and portable furnishings and equipment can help in adjusting space requirements to meet specific needs.

The educational philosophy of a school determines the basic features of the educational program. Part II of this guide provides planners with an opportunity to express basic program features which will then serve as guidelines for the program. For example, the planner is asked to indicate the degree (on a four-point scale) of emphasis that will be placed on particular features of the program. Two examples: "Cooperative or team instruction will be used," or "Community resources will be utilized in instruction."

The actual program objectives should be thoroughly understood by the planners prior to the development of educational specifications and facilities design. Again, the planner is asked to indicate the degree of emphasis that will be placed on particular objectives of the program. Examples of objectives are, "To prepared individuals for entry into gainful employment," and "To provide preprofessional educational training for students who plan to enter colleges and universities."

Program content areas in machine trades are (a) machine shop theory, and (b) blueprint reading and shop drawing. This guide contains complete development for these content

FEBRUARY ISSUE . . . Next month, *Research Visibility* will report on studies dealing with Research in Vocational Education.

areas, and for courses in English, mathematics and science, music, and physical education.

The three modes of learning—reaction learning, interaction learning and action learning—dictate the planning of instructional areas. Teacher-centered reaction learning generally takes place in an area designed for lecture and demonstration. Interaction learning takes place in a seminar-type area, and action learning occurs in a laboratory-type area. This guide contains the necessary information for making mathematical determinations of the number of various kinds of instructional areas needed to house specific programs.

TOPIC FIVE: Other

See Bibliography for information on availability of complete studies

The Employment of Retired Military Personnel, by Laure M. Sharp and Albert D. Biderman. Bureau of Social Sciences Research, Inc., Washington, D.C. July 1966.

There are now half a million retired military personnel in the United States and within the next 15 years it is expected that this figure will double. This study deals with the employment-seeking process and problems faced by these men. One of the specific objectives of this study is to determine the transferability from military to civilian occupations of occupational skills, and the resulting implications for training and retraining programs.

A three-phase panel survey was conducted of a group of officers and enlisted men who retired in May 1964. Excluded from this group were those over age 52, women, and those with over 30 percent disability. In the first phase, 3,350 preretirement mail questionnaires dealing with personal and education background, military career and retirement plans were sent out; 2,638 were returned and analyzed. The second phase was a 15-week follow-up survey of 500 respondents who had said they were planning to look for jobs immediately after retiring, plus any counselors and employers they had met with. Of the 435 contacted (95 officers and 340 enlisted men), 73 percent had found employment within the 15-week period. In the third phase, 2,755 postretirement mail questionnaires were distributed for information on seeking, finding and changing jobs during the first six months after retirement; 116 who had indicated they didn't plan to seek a job were also included. There was an 82 percent response rate in the third phase.

In addition to the survey described above, special analyses were obtained from the Department of Defense Survey of Retired Military Personnel, September 1963. Responses were used only from men who retired from 1960 to 1963, and who met the same criteria mentioned in the above survey—3,098 (937 officers and 2,161 enlisted men).

The median age for all the retirees is 43 years; the median rank for officers is the 0-5 level, and for enlisted men is the E-7 level. The median educational level for officers was "some college" and for enlisted men was high school graduation. Before their last assignment only 18 percent of the officers and 16 percent of the enlisted men had asked for assignments which would give them experience they might be able to utilize in civilian jobs. As the retirement date grew closer, however, 57 percent of the officers who had any choice in assignment reported that postretirement considerations were a factor in the choice made. Only 45 percent of the officers and 34 percent of the enlisted men had specific retirement plans a year or more before they retired.

The study revealed that 83 percent of the retirees planned to enter the labor market as soon as they retired; 13 percent planned to do so after taking a vacation. More than 66 percent believed they would find a job within three months, and only three percent thought they would receive a salary lower than that they had received in the military service. Most of them did not believe they would need any extensive retraining—that any necessary training could be obtained on-the-job.

Among all the retirees there was a predominance of administrative and quasi-administrative experience and aspirations, and a limited perception of competence and interest in technical jobs. Most look for a job with a large bureaucratic organization, particularly with the federal government. Prospective employers, on the other hand, felt that the retired applicant needed training more often than did the applicant himself.

Only three percent had received counseling from military sources; the public employment service, both federal and state, was the most popular choice of job information for the enlisted men, and was the second choice for the officers. Eight months after retirement, 71 percent of the officers and 76 percent of the enlisted men were employed; another 13 percent of the officers and 3 percent of the enlisted men were in school full time. Thus 16 percent of the officers and 21 percent of the enlisted men were unemployed at the time—a high percentage compared to the male civilian population of the same age group.

Without detailed job descriptions to compare it is difficult to determine the actual degree of skill transfer; however, it appears that there is a larger transfer for the enlisted men. In cases where one would expect a high degree of transfer, such as in electronics and medical specialities, only a third to a half of the men got employment in their specialties. In some fields it is felt that the inability to transfer seniority is a large barrier to employment in one's specialty.

Overall income levels are low, due to the concentration of many of the officers and enlisted men in low-paying clerical, sales and service jobs. Because of the low income and the perception of skills not fully utilized, close to half the retirees expressed an interest in getting different jobs. Several changed their minds about the need for training, but most still felt that on-the-job was adequate. Sharp and Biderman feel that the "development of suitable training programs undoubtedly would lead to substantial financial rewards for many of the retirees."

Because those officers and enlisted men with higher educational levels were more likely to find jobs, and to receive higher salaries than those less educated, the authors conclude that it is educational achievement that is the most important factor in occupational adjustment—and not a specific military skill.

Retraining programs should be tailored to the special needs of officers and enlisted men. The most appropriate training for officers would be programs leading to college degrees. This would also facilitate placement in sectors where there is much mutual interest (educational and nonprofit institutions, state and local governments) but where lack of formal qualifications and lack of placement channels have led to relatively little placement activity. For many enlisted men, too, programs of formal, college-level instruction might lead to significant pay-offs. But in addition, there appears to be a hard core of hard-to-place ex-servicemen who suffer typically from lack of formal education and a low transfer specialty. Their problems might be best met through specially designed experimental programs.

The survey also points out that intensive placement efforts could decrease the number of skills lost to the civilian economy; however, "ex-military personnel are not likely to contribute significantly to the solution of technical shortage problems."

PLAIN TALK

RESEARCH VISIBILITY continues to be sensitive to the problems of communication with its readership. We hope that a monologue has not developed. The monthly banter of "Plain Talk" has attempted to focus upon the primary purpose of *RV*—synthesis and dissemination of vocational research, the ultimate purpose of which is "utilization."

A proposition for research utilization. Especially in this issue's concern for the utilization of research result by the *administrator,* a great deal of enthusiasm should be generated for the efforts of the USOE Research Utilization Branch. Under dateline of Sept. 1, 1968, an attractive small brochure with a nine-page description was distributed to encourage "Interpretive Studies of Educational Research and Development." Inasmuch as it is indicated in the release that only 10 studies are to be funded in 1969, and another 10 in 1970, it is hoped that more than a few of our vocational researchers will stake early, strategic claims.

The real, salient impact of the release, however, goes far beyond the number of projects and investigators upon whom the fickle funding gods will smile. If the principles upon which research utilization are based are valid as stated in the release, a golden opportunity is presented to administrators, research administrators and other professionals of the vocational community for teamwork and cooperation in making research and research results functional. Notwithstanding the fact that the funding may be lean and not enough to go around, the germs of the utilization idea at this juncture may be of far greater significance than the wherewithal to perform the research. Recalling that administrators are generally soft touches for ideas that really embrace education pay dirt in terms of the improvement of the program, there are many ways to skin the funding cat.

The purpose of the interpretive studies encouragement is practical and functional: "to put the significant findings of educational research and development into the hands of practitioners and those who make educational decisions for their communities." More specific and explanatory, the description of the program "includes the analysis, interpretation, re-packaging and dissemination of research results and other pertinent information for a variety of specific, non-research audiences. "And still more specific to *school administrators,* the purpose of the program (now in its second year) is to "provide information for modifying existing programs or implementing new ones, thereby facilitating more rapid adoption of tested educational innovations."

Priority problem areas are *urban education*: (a) modifying the attitudes of educational personnel toward minority groups and the disadvantaged; (b) restructuring educational patterns in urban areas, and (c) improving urban education through school-community cooperation. In educational *professional development* the priorities are: (a) selection, training and utilization of administrative and professional service personnel; (b) career patterns in education, and (c) new patterns of staff utilization and emerging careers in education. *Higher education* has for its priorities: (a) the prediction of academic success, (b) the college dropout; (c) the application of technology) (d) instructional effectiveness, and (e) the junior college curriculum. The adult and *vocational education* priorities recognized are: (a) training programs for those who teach disadvantaged adults; (b) training librarians for work with minority groups, and (c) occupational guidance and counseling.

Focus—the establishment of policy for vocational education manpower. The vocational administrator is confronted not only with the determination of policy of world-of-work manpower—in some quarters interpreted as supplying the *demand* for persons for the work force—but more critically he faces a need to determine the *professional vocational education manpower* which will be required to operate the many facets of the modernized program. The determination in this respect is both *quantitative* and *qualitative.* There may be a decided new twist to reckon with in policy determination of this nature.

Title II of Public Law 90-576 (Vocational Education Amendments of 1968) is the Vocational Education Leadership and Professional Development Amendment. It is *not* an amendment to the Vocational Education Act of 1963, but it *is* an amendment to the Higher Education Act of 1965, specifically to Title V, (Education Professions Development Act.) Consequently, the funds which will be appropriated for the preparation of leadership and professional vocational personnel are likely to be administered by the OE Bureau of Educational Personnel Training, and not by the Bureau

of Adult, Vocational, and Library Programs. This switch is a new twist. It is probable that other new twists may occur in the administration of other amendments of VEA 1968.

Professional vocational and technical personnel should be prepared to be watchful and to exercise more than a little militancy to influence the direction and use of the funds for vocational personnel development. It remains to be seen in the days ahead what other OE bureaus may cultivate an "interest" in managing other aspects of VEA 1968. If the vocational education community has been disenchanted with the administration of 4c research funds since the advent of the 1963 Act, it may find that there may be other new administrative twists in the offing. The formulation of guidelines and administrative regulations which reflect the true spirit of the vocational amendments as the Congress perceives them should be anticipated and hopefully be the product of extensive vocational personnel movement and frontier thinking.

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TOPIC THREE: Cost/Benefit Analysis

"Vocational-Technical Education. A Prospectus for Change." Edited by Carl J. Schaefer and Jacob J. Kaufman. The Commonwealth of Massachusetts. Boston. 1968. 173 pages. Available for $1.00 from the Advisory Council on Education, 102 Tremont St., Boston, Mass. 02111.

"Innovation in Education: New Directions for the American School. A Statement of National Policy by the Research and Policy Committee of the Committee for Economic Development." July 1968. Emilio G. Collado, Committee for Economic Development. New York, N.Y. 86 pages. For sale by Committee for Economic Development, 477 Madison Ave., New York, N.Y. 10022. Price: $1.00.

TOPIC FOUR: Plant and Facilities

"A Comprehensive Concept for Vocational Education Facilities." By Louis J. Kishkunas and others. Pittsburgh Board of Public Education, Pittsburgh, Pa. June 1967. 64 pages.

"Problems in Planning Urban School Facilities." William W. Chase. U.S. Department of Health, Education, and Welfare, Washington D.C. 1964. 72 pages. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price: 30 cents.

"Development and Testing of an Experimental Mobile Instructional Facility for Applied Courses in Engineering Technology." Louis W. Kleine. New Mexico State University, Las Cruces, N. Mex. May 1968. 36 pages. (See future *Research in Education* for availability.)

"A Guide for Planning Facilities for Occupational Preparation Programs in the Machine Trades." Milton E. Larson. The Ohio State University, Columbus. September 1968. (See future *Research in Education* for availability.)

TOPIC FIVE: Employment of Retired Military Personnel

"The Employment of Retired Military Personnel. Laure M. Sharp and Albert D. Biderman. Bureau of Social Science Research, Inc. 1200—17th St., N.W., Washington, D.C. July 1966. 286 pages. (CFSTI AD # 646 463, MF-$0.65, HC-$3.00.)

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Not reported in this issue

TOPIC: ONE: National and State Leadership

"Organization and Administration." Allen Lee and Herbert M. Hamlin. Chapter VI, pp 395-404, *Review of Educational Research*, October 1968, Jerome Moss, Jr. Available for $3.00 from American Educational Research Association, 1126—16th St., N.W., Washington, D.C. 20036.

TOPIC TWO: The Local Administrator

"A Comparison of the Effectiveness of the Project and Cooperative Methods of Instruction on Selected Competencies in Distributive Education at the Secondary Level." Edward T. Ferguson. Department of Secondary Education and Curriculum, Michigan State University, East Lansing, Mich. April 1968. 22 pages. (VT 005 417, for ED # see November 1968 *Research in Education*.)

"Proceedings of National Seminar on Program Planning, Budgeting and Evaluation, Vocational-Technical Education. Final Report." John Connolly and Clodus R. Smith, University of Maryland, College Park, Md. Dec. 15, 1967. 64 pages. (ERIC ED # 018 645, MF-$0.50, HC-$2.64.)

"Vocational Education: A Feasibility Study for the Suburbs of Tomorrow." Volume I. B.E. Wetzel and others. The Educational Development Cooperative. 18216 Harwood Ave., Homewood, Ill. 60430. 1968. 150 pages.

"Summary of the First Year: ERIC Clearinghouse on Educational Facilities." A six-page brochure. 1968. ERIC CEF, 606 State St., Room 314, Madison, Wis. 53703.

"Report of the Task Force on Occupational Training in Industry: A Government Commitment to Occupational Training in Industry." Vivian W. Henderson and others. U.S. Department of Labor, Washington, D.C. August 1968. 120 pages.

"Report of the Committee on Administration of Training Programs." Weston E. Vivian and others. March 1968. 84 pages. Washington, D.C. Copies available from the Department of Health, Education, and Welfare, Washington, D.C. 20201.

"Organization and Operation of a Local Program of Vocational Education." Gerald B. Leighbody and William J. Small. State University of New York. Buffalo. 1968. 96 pages. (Available from Instructional Materials Laboratory, Trade and Industrial Education, The Ohio State University, 1885 Neil Ave., Columbus, Ohio 43210. Price: $1.00, postage and handling: 25 cents. 26-100 copies—10 percent discount, 101 or more copies—20 percent discount; postage and handling—15 cents each for 2-12 copies and 10 cents each for 13 or more copies.)

"Administrators for American Junior College: Predictions of Need 1965-1980." Raymond E. Schultz. American Association of Junior Colleges, Washington, D.C. 1965. 29 pages. (ERIC ED # 011 768, MF-$.25, HC-$1.16. For sale by the American Association of Junior Colleges, 1316—16th St., N.W., Washington, D.C. 20006. Price: 50 cents.)

"The Youth We Haven't Served: A Challenge to Vocational Education." Barbara H. Kemp. U.S. Department of Health, Education, and Welfare. Washington, D.C. 1966. 60 pages. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price: 25 cents.

"Educational Implications of Technological Change. Technology and the American Economy. Appendix Volume IV." National Commission on Technology, Automation, and Economic Progress, Washington, D.C. February 1966. 149 pages (VT 005 797, see future *Research in Education* for ED #)

"The Economic Effectiveness of Retraining the Unemployed. Research Report to the Federal Research Bank of Boston, No. 35." Michael E. Borus. June 1964. 226 pages. (VT 005 615, for ED # see future *Research In Education.*

"Methods of Forecasting Manpower Requirements With Special Reference to the Province of Ontario." Ozay Mehmet, Toronto University, Toronto, Canada. 1965. 70 pages. (VT # 005 315; for ED # see future *Research in Education.*)

"An Experimental and Demonstration Manpower Program for Disadvantaged Youths. Final Report." Richard Greenfield, New York City Board of Education, New York, N.Y. 1966. 141 pages. (VT # 005 653; for ED # see future *Research in Education.*)

TOPIC THREE: Cost/Benefit Analysis

"Guidelines for an Adequate Investment in Instructional Materials." Lemos L. Fulmer and Robert C. McNamara, Jr. National Education Association of the United States. Washington, D.C. 1967. 33 pages. Single copy, 35¢. Quantity orders at the following discounts: 2-9 copies, 10 percent; 10 or more copies, 20 percent. Make check payable to the National Education Association, 1201—16th St., N.W., Washington, D.C. 20036.

"Education Parks: Appraisals of Plans to Improve Educational Quality and Desegregate the Schools." United States Commission on Civil Rights. October 1967. 110 pages. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price: 35 cents.

TOPIC FOUR: Plant and Facilities

"A Guide for Planning Facilities for Home Economics Occupational Preparation Programs." Richard F. Meckley and others. The Center for Vocational and Technical Education, The Ohio State University, Columbus, Ohio. (Research 23) 86 pages. (VT 006 618. For ED # see February 1969 *Research in Education.*)

"Seminar on Shop and Laboratory Planning for Vocational Education, Final Report." Gordon G. McMahon, State University College, Oswego, N.Y. January 1968. 13 pages. (VT 005 419, for ED # see January 1969 *Research in Education.*)

"A Guide for Planning Facilities for Occupational Preparation Programs in the Machine Trades." Research 24. Milton E. Larson, The Center for Vocational and Technical Education, The Ohio State University, Columbus, Ohio 43212. September 1968. 78 pages. (See future *Research in Education* for availability.)

"A Guide for Planning Facilities for Occupational Preparation Programs in Data Processing." William A. McIntosh. The Center for Vocational and Technical Education, The Ohio State University, Columbus, Ohio 43212. 76 pages. November 1968. (For ERIC # see future *Research in Education.*)

TOPIC FIVE: Other

"One-Third of a Nation: A Report on Young Men Found Unqualified for Military Service." By The President's Task Force on Manpower Conservation, Washington, D.C. January 1964. 90 pages. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price: 55 cents.

"Organizations in Educational Administration: A Directory of Information Sources." Edited by Stuart C. Smith. ERIC Clearinghouse on Educational Administration. Eugene, Ore. July 1968. 40 pages. (See future *Research in Education* for availability information.)

"Administration: Bibliography No. I, Addendum No. VII, May-August 1968." The University of Wisconsin, Madison. 1968. 41 pages. Available from the University of Wisconsin Center for Studies in Vocational and Technical Education, Madison, Wis.

"Planning and Conducting Cooperative Occupational Experience in Off-Farm Agriculture." Harold Anderson. The Center for Vocational and Technical Education. The Ohio State University, Columbus. August 1965. 146 pages. (ERIC # ED 011 035, MF-$0.75, HC-$5.92.)

"A Study of the Innovative Aspects of Emerging Off-Farm Agricultural Programs at the Secondary Level and the Articulation of Such Programs with Technical College Curriculum in Agriculture. Joe P. Bail and William H. Hamilton. Cornell University, Ithaca, N.Y. January 1967. 92 pages. (ERIC # ED 012 792, MF-$.50, HC-$3.76.)

DOCUMENT SOURCES

The material reported on in *Research Visibility* may be obtained from several sources. The source of each publication is indicated in each entry. The key to the abbreviations used there and instructions for obtaining the publications are as follows:

CFSTI—Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. Copies of reports with this symbol may be purchased for $3 each (paper) or 65 cents (microfiche). Send remittance with order directly to the Clearinghouse and specify the accession number (AD or PB plus a 6-digit number) given in the listing.

ERIC—Educational Resources Information Center, EDRS, c/o NCR Co., 4936 Fairmont Ave., Bethesda, Maryland 20014. Copies are priced according to the number of pages. The MF price in the listing is for microfiche; the HC price is for paper copies. Send remittance with order directly to ERIC-EDRS and specify the accession number (ED plus a 6-digit number) given in the listing. *How to Use ERIC,* a recent brochure prepared by the Office of Education, is available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402; the catalog number is FS 5.212.12037; price: 20 cents.

GPO—Government Printing Office. Send orders directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, with remittance for specified amount.

MA—Manpower Administration. Single copies free upon request to U.S. Department of Labor, Manpower Administration, Associate Manpower Administrator, Washington, D. C. 20210

OTHER SOURCES—Where indicated the publication may be obtained directly from the publisher at the listed price.

RESEARCH VISIBILITY

Synthesis / Application / Dissemination

Research in Vocational and Technical Education

VOCATIONAL EDUCATION is *discovery* . . . During the brief history of this dissemination project, *Research Visibility* editors have emphasized key words which, in their opinions, characterize the nature and dynamics of vocational and technical education: *people*, *service* and *opportunity*. The *discovery* keynote of this issue of *RV* places particular emphasis upon the importance of the *quest* for new knowledge, the basic *curiosity* of professional personnel, and the motivation spirit and challenge of *inquiry*. And the *discovery* motive is not reserved for researchers and the sophisticated research process. Historically, vocational education has been rich in its potential for assisting students at all levels in the discovery of themselves and bringing their talents to more full fruition—talents which have not been too discernible to many educators and academicians.

To some extent vocational education legislation has traditionally included provision for research. Since passage of the Vocational Education Act of 1963, vocational research as a late bloomer has a great deal to show for its efforts despite the varying degrees of satisfaction expressed for it. One illustration of this fact is noted in the October 1968 issue of *Review of Educational Research* (Vol. XXXVIII, No. 4, American Educational Research Association), portions of which are reviewed in this issue of *RV*. Jerome Moss, Jr., of the University of Minnesota, as chairman of the AERA Committee on Vocational, Technical and Practical Arts Education, assisted by 13 leaders in research, has consolidated a report which is "directed to researchers and potential researchers and attempts to provide a constructive evaluation of significant projects in order to open new research vistas for the reader."

It is *RV*'s opinion that researchers (and others interested in research) will not only find an interesting review and documentary in the *Review*, but also a different organization and problem treatment by the Committee. Inasmuch as the last *Review* dealing with vocational education was published in October 1962 (Vol. XXXII, No. 4), the new publicaton is, in a sense, an informal inventory and possible barometer of the research activity since the Vocational Education Act of 1963 and perhaps of the shape of things to come. The summarization chapter, "The Past is Prologue," of Chairman Moss indicates a research milestone and some achievements:

> This has been a special six-year period for research in vocational technical, and practical arts education. For the first time, because of the passage of the Vocational Education Act of 1963, appreciable amounts of funds were made available for research-development-diffusion activities across the total spectrum of problem areas in the field. The profession began the slow tooling-up process necessary to produce qualitative changes in educational programs through systematic research-related activities; a cadre of qualified personnel was

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EDITOR'S NOTE

Research Visibility is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The *Research Visibility* report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-070633, project 7-0633; "Synthesis and Application of Research Findings in Vocational Education").

George L. Brandon, professor in residence (Pennsylvania State University) is editor of *Research Visibility*. He is assisted in the preparation of these reports by Research Assistant Anne Ware.

As Research Visibility is prepared under a U. S. Office of Education grant, it is not included in the American Vocational Journal copyright.

formed and enlarged; the status of verified knowledge was assessed; professional organizations began to take cognizance of the importance of encouraging research-related efforts; and a network of special agencies was created to help stimulate, coordinate and conduct research-development-diffusion activities.

The Moss and Company report is not the sole reporter of vocational research and development progress. Director Robert E. Taylor and A. J. Miller, Ohio State University Center, and Co-Director Gerald G. Somers, University of Wisconsin's Center for Studies in Vocational and Technical Education, supply statistical and descriptive evidence of growth in the discovery process. In an informal report to *RV*, Director Taylor indicates the following general activities and accomplishments of the Ohio State Center:

National Research, Development and Leadership Seminars. Number of activities—114, with a total attendance of 4,220, and an organization representation of 50 state departments of education and 250 institutions of higher education.

Collaborative efforts—Research and Leadership Development activities. Number to date—47, with representation of 13 state departments, 24 colleges and universities, 5 community colleges, 3 professional associations, and 2 others.

New collaborative efforts. There are 39 pending.

National Leadership Activity participants· 122 state directors, 728 state supervisors, 1,514 teacher-educators, 1,097 local administrators and instructors, and 759 others.

Number of Center publications. 117.

Number of publications sold. 26,375.

Program Areas and Abstracts of Project Activities, 1968-69 (mimeo), supplied to *RV* by Aaron J. Miller, also of the Ohio State Center, indicates the Center's six major program areas which provide a focal point for its staff interaction and planning: (a) state leadership of vocational-technical education, (b) curriculum development, (c) teacher-education program description, (d) vocational-technical education for the occupationally disadvantaged, (e) vocational development and adjustment, and (f) the change process in vocational-technical education. Each project is briefly described by an abstract which indicates the title, principal investigator, duration, purpose, objectives, contribution to education, and procedures. The publication indicates an interesting and active year ahead for the staff and that segment of the vocational community which is involved in the ongoing program of the Center.

Report 1968—Center for Studies in Vocational and Technical Education, Industrial Relations Research Institute, The University of Wisconsin, Madison (see bibliography section of this issue) by Co-Directors J. Kenneth Little and Gerald G. Somers, shows in 91 pages the various activities of the Wisconsin Center. The publication describes the various aspects of the Center, now in its fifth year of operation. In addition to a description of the center staff, its advisory committee and reference unit, *Report 1968* indicates the nature of the research activities (labor market information, training of the unemployed and disadvantaged, evaluation, comparative studies of training and labor market behavior, community and political factors affecting vocational education, and vocational staffing).

The work of Center graduate students is shown, in addition to the numerous conferences which distinguish the focal points and interests of the Center in relation to description of the publications effort— (*Journal of Human Resources, Newsletter, IRRI Report,* reprint series, conference proceedings, RCU reports, faculty publications, and those which are planned. It is obvious that the Center has enjoyed an active and productive year.

TOPIC I: Research on Research

See Bibliography for information on availability of complete studies

Review of Educational Research: Vocational, Technical and Practical Arts Education. Jerome Moss, Jr., and others. American Educational Research Association, Washington, D.C. October 1968.

This publication reviews the literature for the six-year period since the October 1962 issue of *Review of Educational Research*, which was also devoted to vocational, technical, and practical arts education. This *Review* is divided into chapters by problem area and is considered to be representative of well-designed studies that have a wide applicability, give better understanding to practical or theoretical questions, and provide better techniques for education and research.

Three of the chapters will be treated in detail in forthcoming issue of *Research Visibility*—"Program Evaluation," by John K. Coster and Loren A. Ihnen of North Carolina State University; "Staffing," by Harland E. Samson, University of Wisconsin; and "Curriculum Development," by Lloyd J. Phipps and Rupert N. Evans of the University of Illinois.

Chapter I of the *Review*, "Social and Philosophical Framework," was prepared by Elizabeth M. Ray of Pennsylvania State University. The Vocational Education Act of 1963 provided the philosophical framework for developments since that time. Several of the important research studies of the 1960s are discussed in light of their contribution and explanation of the new emphasis which has been placed on preparing students for the world of work: Grant Venn's *Man, Education and* Work, 1964; Jacob .J Kaufman's *The Role of the Secondary Schools in the Preparation of Youth for Employment,* 1967; Max U. Eninger's *The Process and Product of Technical and Industrial High School Level Vocational Education in the United States*; and James S. Coleman's *Equality of Educational Opportunity*, 1966.

Chapter II, "Manpower Supply and Demand," prepared by Jacob J. Kaufman and Anne F. Brown, is a discussion of the interaction of the supply of and demand for labor, the theory of manpower supply and demand, manpower requirements, research requirements for manpower analysis, and labor force projections. Conclusions are that, although methods are not yet refined, it is possible to project training and educational requirements to meet demands that will be placed upon labor. Thus, emphasis is placed upon manpow-

er analysis as a tool for educational planning, with the warning that it should be utilized only as an approximate guideline since such analysis is not yet perfected.

Some of the major contributing research studies were Norman Medvin's "Occupational Job Requirements: A Short Cut Approach to Long Range Forecasting," 1967; Gerd D. Wallenstein's *Fundamentals of Technical Manpower Planning*, 1966; Garth L. Mangum's "The Development of Manpower Policy 1961-65"; Solomon Barkin's "Issues and Research Needs Relative to Manpower," 1967; and James A. Scoville's "The Development and Relevance of U.S. Occupational Data," 1966.

Chapter III, "Career Development," was prepared by W. Wesley Tennyson. His comments utilize the research studies of Donald E. Super, *Floundering and Trial After High School*, 1967; David J. Weiss, *The Measurement of Vocational Needs*, 1964; John D. Krumboltz and Wade W. Schroeder, "Promoting Career Planning Through Reinforcement," 1965; John L. Holland, "Major Programs of Research on Vocational Behavior," *Man in a World at Work* (edited by Henry Borow) 1964; and Warren D. Gribbons and Paul R. Lohnes, *Career Development*, 1966.

Daniel L. Householder prepared the chapter titled, "Techniques and Modes of Instruction," which reviews studies of the problems of teaching vocational, technical and practical arts education. He mentions the article by David C. Bjorkquist, "The Relative Effectiveness of Scale Models and Pictorial Drawings in Learning Orthographic Projections," 1966. Other studies in this area were David J. Pucel's "The Subsumption Theory of Meaningful Verbal Learning and Retention Applied to Information Sheets," 1966; Jerry Streichler's *Review and Synthesis of Research in Industrial Arts Education*, 1966; and Hester Chadderson and Alyce M. Fanslow's *Review and Synthesis of Research in Home Economics Education*, 1966.

Chapter VI, "Organization and Administration," was prepared by Allen Lee and Herbert M. Hamlin. Some of the pertinent studies they reviewed were Harold T. Smith's *Education and Training for the World of Work*, 1963; *The Current Status of State Level Organization*, by J. Chester Swanson, 1967; "A Review of Research in the Administration and Supervision of Industrial Education," by Jerome Moss, Jr., 1965; and *Flexibility for Vocational Education Through Computer Scheduling*, by Dwight W. Allen, 1966.

Research Priorities in Technical Teacher Education: A Planning Model. Aaron J. Miller. The Center for Vocational and Technical Education. The Ohio State University, Columbus. 1967.

In this document Miller presents an analysis of the general area of technical education which provides a framework for further inspection of specific parts of this educational system. It is the anticipated purpose of this document to "serve to structure, clarify and, hopefully, 'trigger' new research and development efforts related to this critical area of teacher education." Miller defines technical education as "a program of planned and integrated classroom and laboratory experiences designed to prepare a technician for entry into a cluster of jobs in some field of technology . . . these curricula are generally of post-high school level and are based on the knowledge of science and/or mathematics associated with that field of technology."

Miller analyzes the system of technical teacher education in terms of four aspects: (a) role of the technical teacher, (b) selection and recruitment of technical teachers, (c) programs (with implications for placement) for training technical teachers, and (d) evaluation of technical teachers. Each of these areas is discussed in terms of pertinent questions relevant to problem solutions and a review of relevant literature.

The final chapter contains suggestions for future research and development activities that Miller feels may provide answers to those questions which were left unanswered by the literature review. Two examples of these suggestions are contained in the following paragraphs.

1. *Determination of Present Sources of Technical Teachers.* Purpose: To determine the various sources of present technical teachers to gain insights into future sources for teacher recruiting.

Examine, categorize and itemize current sources of technical teachers to determine where they come from, their educational background and their past occupational experience. Sample both public and private technical institutes, community colleges and area vocational schools in surveying the backgrounds of these teachers.

Develop profiles for the several types of technical teachers based upon their past experience, training, education, and other relevant background data.

Evaluate the relative effectiveness of these profile groups and sources of teachers by some predetermined criteria.

2. *Determination of Employment Criteria for Technical Education Teachers.* Purpose: To determine the employment criteria for technical teachers at the various program levels.

Determine the employment criteria and/or certification requirements of the state departments of vocational education for technical education teachers.

Determine the employment criteria as expressed by the various institutions employing technical teachers.

Determine any incongruity between employment criteria at the high school and the post-high school level; employment criteria in institutions subject to the regulations of state certification and institutions and organizations not subject to these regulations; and employment criteria as expressed by institutions and actual qualifications of teachers being employed.

Keeping Abreast of CAI. Current news and developments in computer assisted instruction is periodically reported by *Entelek* in "Entelek Box Score of CAI Programs." For instance in Vol. III, No. 8, *Entelek* reports the recommendation of the influential Committee for Economic Development that, "The missing link in education is development research as it is practiced in industry," and advocates the implementation of such innovations as CAI, PI and closed-circuit TV. The newsletter is published by Entelek Inc., 42 Pleasant St., Newburyport, Mass. 01950.

TOPIC TWO: Seminars and Institutes on Research

See Bibliography for information on availability of complete studies

Report of a National Vocational-Technical Education Seminar on Research and Curriculum Development, Feb. 7-11, 1966. Herschel T. Lester, Jr. University of Georgia, Athens.

The purpose of this seminar was to advise vocational-technical education leadership of existing research methods believed to be useful in controlling curricula variables. The seminar utilized an inter-disciplinary approach to research in order to take advantage of individuals with various competencies.

Lester feels there are four ways to avoid waste of human resources in our country today: (a) educational programs must be made more flexible; (b) curriculums must be personalized; (c) continuous and constant counseling must be made available; and (d) personal help must be offered for problems which are only indirectly related to school work.

Twenty-three consultants, 38 participants and 3 observers were in attendance at the seminar. Eleven of the consultants presented the papers which make up the major content of this report. This seminar was one of six conducted by the University of Georgia, the American Vocational Association, Cornell University, and the U.S. Office of Education.

The discussion of Norman J. Wood, University of Georgia, "The Interpretation of Economic Data," described some of the major types of economic research (historical research, the nature of our economic institutions, the current performance of our economy, economic forecasting, and public policy questions). He also described the Consumers' Price Index and the measurement of unemployment in terms of the collection and analysis of data.

Raymond Payne, University of Georgia, presented a paper titled, "A Look at Social Class," in which he gave a general treatment of social class and social stratification as it is being approached by sociology, social psychology and cultural anthropology.

Selz C. Mayo, North Carolina State University, spoke on the "Relationships of Community Environment to the Vocational Education Curriculum." He gave attention to the image of vocational education in the community, the image of adults with respect to additional education, the quality of the community educational facility and services, and the social stratification system.

Joseph C. Bledsoe, University of Georgia, discussed "Educational Psychology and the Curriculum," with emphasis on the following: (a) the scope of psychological research in education; (b) the conditions necessary for evaluating curriculum research; (c) the need for new approaches in research; (d) complexity of curriculum evaluations; and (e) inadequacy of dependence of objective data alone.

Harry E. Anderson, Jr., University of Georgia, discussed "Statistical Models in Curriculum Development Studies." Joseph R. Hooten, Jr., also of the University of Georgia, presented a paper titled, "The New Mathematics: A Pattern for Curriculum Reform." Other papers presented by members of the professional staff of the University of Georgia were "Curriculum Development and Evaluation in English," by Many J. Tingle; "The Anthropology Curriculum Project at the University of Georgia as a Model for Curriculum Development: Practical Problems," by Marion J. Rice; and "General Suggestions for Writing Research Proposals," by Warren G. Findley, David S. Bushnell, U.S. Office of Education, described "The Demand for Curriculum Revision in Vocational Education."

Report of a National Invitational Research Planning Conference on Trade and Industrial Teacher Education, May 23-27, 1966. Calvin J. Cotrell. The Center for Vocational and Technical Education. The Ohio State University, Columbus. 1966.

This conference was held to stimulate joint state and institutional interest in trade and industrial teacher education research and development. Objectives were:

1. To review previous research in trade and industrial teacher education.
2. To review and analyze the professional literature for trade and industrial teacher education.
3. To review innovations in general teacher education.
4. To review innovative programs and practices in trade and industrial teacher education.
5. To review trade and technical teacher education in the military service.
6. To consider projections for trade and industrial teacher education.
7. To develop guidelines for the improvement and expansion of trade and industrial teacher education.
8. To identify research and development programs needed to improve and expand trade and industrial teacher education.

Twenty-two national leaders in trade and industrial teacher education and related areas participated in this conference. Background papers were presented which described projected teacher education programs.

John L. O'Brian and Carl J. Schaefer presented a survey of the literature in trade and industrial teacher education, dividing it into five major sections for discussion purposes: (a) Recruitment; (b) The Philosophy of Teacher Education; (c) Teacher Competencies; (d) Program Organization; (e) In-Service Offerings; and (f) The Picture, or a discussion of degrees earned in trade and industrial education as reported by the Department of Health, Education and Welfare.

O. H. Beaty presented an analysis of sources of trade and industrial teachers, based on a survey of 35 state supervisors of trade and industrial education and 32 state supervisors of technical education. Edward K. Hankin gave an analysis of trade and industrial teacher education professional literature, with emphasis on instructional methods and aids, test construction, shop management, and safety. In-

cluded in this discussion were certain selected desirable competencies and a bibliography of 408 related textbooks and other reference books and articles. Durwin M. Hanson also gave an analysis of the professional literature in the areas of trade analysis, course construction and curriculum materials development. Gordon G. McMahon presented an analysis of the literature as it pertains to history and philosophy, shop planning, and industrial and public relations.

James F. Peterman discussed the development of technical training, teacher training, and school administration procedures in the U.S. Navy. Dwight W. Allen and David B. Young discussed the use of television recordings in the preparation of secondary school teachers at Stanford University, and included a description and the cost of different kinds of television recording equipment that were used in the program.

David Allen discussed some innovations in trade and industrial teacher education, comparing the changes in recruitment and selection of teachers, education curriculum structure, sequence and content of education courses, methods of presenting teacher education instruction, and methods of evaluating the education programs. He also presented a comparison of teacher certification requirements in various states, and the type and amount of professional teacher education preparation required by various states. Implications of computerized instruction, flexible scheduling, and projections of trade and industrial teacher education were discussed by George L. Brandon, Dwight W. Allen and Melvin L. Barlow, respectively.

Twenty-one research and development suggestions were agreed upon by the participants as having high priority. The top five in this list were as follows:

1. Identify and evaluate practices of preservice and inservice trade and industrial teacher education in the nation.
2. Prepare monographs to fill voids in the professional literature for trade and industrial teacher education.
3. Evaluate the teacher education principles developed during the planning conference.
4. Identify the unique features of trade and industrial and technical teacher education and the elements common to all vocational and technical teacher education programs.
5. Conduct a study to establish minimum standards for teacher education for a state.

Choice of Vocational Education as An Educational Opportunity. Report of a Research Planning Conference, Fort Washington, Penn., Sept. 8-9, 1967. Edited by Theodore J. Cote and others. The Center for Vocational and Technical Education. The Ohio State University. 1967.

The American Personnel and Guidance Association Commission on Guidance and Vocational Education is charged with improving the dialogue between vocational education and guidance. This conference was one of the Commission's first projects. Preliminary to the conference, a research plan was developed to deal with factors which influence youth in the selection of vocational education as a means of vocational development.

Participants in the conference were members of the Commission and representatives of the Vocational Education Research Coordinating Units from Pennsylvania, New Jersey and Delaware. The conferees discussed the initial research plan and developed guidelines for its improvement. Emphasis was given to developing a research model for use in various school districts.

Two papers were presented during the conference which indicated reactions and recommendations to the existing research model. Martin R. Katz, Educational Testing Service, Princeton, N. J., and Alan G. Robertson, director, Division of Evaluation, New York State Education Department, presented these papers.

The objectives of the initial research plan were (a) to study in-depth the environmental obstacles and impediments in communities that discourage students from choosing vocational education; (b) to develop a model to assess these obstacles and impediments; and (c) to propose solutions for overcoming the obstacles determined to be important by this study. The design of the plan would, thus, involve an in-depth study and collection of data, the development of a conceptual model and the recommendation of solutions to obstacles.

As a result of the conference the research plan was modified by changing the terminology to speak of "influences and factors" rather than "impediments and obstacles." In addition, the first objective was expanded, as follows:

To identify and evaluate the degree of intensity of these influences and factors that impinge positively or negatively on the student's consideration and/or selection of vocational education as an alternative opportunity in working toward a career or occupational goal.

a. To consider the impact of certain variables (individual, school, community, family) in terms of the identification of these factors and influences, and the manifestation of degree of intensity of these factors and influences.
b. To determine the differential perceptions of significant groups, e.g., 1. guidance personnel, 2. academic teachers, and 3. vocational educators, relative to the factors and influences bearing on the consideration and/or selection by students of vocational education as an educational alternative.
c. To direct special attention to those factors and influences which may lend themselves to modification.

Three alternative methods were suggested: (a) involvement of a vocational school whose students come from several school districts; (b) involvement of several large comprehensive high school districts; and (c) involvement of a comprehensive high school district which has a variety of student-family input variables.

MDTA Experimental and Demonstration Findings: Putting Research, Experimental and Demonstration Findings to Use. Curtis C. Aller and others. Manpower Administration, Department of Labor, Washington, D.C., June 1967.

A multi-agency seminar on the problem of utilization of research findings was held Nov. 28-29, 1966, in Washington, D. C. The thirty participants were involved in manpower research, experimentation and demonstration, and during

this seminar they discussed the nature of diffusion of innovation and defined the barriers to it. This booklet contains their suggested ways to facilitate knowledge utilization. It also contains a position paper of the Bureau of Research, U.S. Office of Education, 1966; and a description of current activities of some federal agencies in dissemination and utilization.

Reproduced below in their entirety are the suggestions which resulted from this seminar. The participants note that not all the suggestions are relevant to each type of demonstration activity, and that the degree of application is closely linked to availability of resources and the objectives of the particular program.

"1. Stimulate good research proposals by (a) streamlining grant and contract procedures, including providing a small planning stipend after approval of an *informal proposal*, and by (b) inviting and *reaching out* for submission of proposals in a given field to assure desired complementary studies and needed coverage of given subjects, not just waiting for proposals to be submitted.

"2. Prepare and distribute to potential users comprehensive but succinct *periodic reviews of the state of the art/knowledge* in given fields. In these reviews, point up gaps which might be filled by Research and Development (R & D) or Experimental and Demonstration (E & D) projects.

"3. Ask and try to answer continuously, from inception to completion of a project, the questions of its *aims and ultimate use* of results. Whom is the demonstration intended to influence? What are the obstacles to the good use of results, and how can these obstacles be overcome? What criteria should be used to evaluate the results? When these questions have been *tentatively answered*, either before the project begins or at the start, bring in representatives of the identified program group who might be expected to utilize the findings (in addition to requiring that each proposal include recommendations by the sponsor on how to implement the findings of his project). The representatives will meet with the project staff and funding agency program officer, for *consultative reactions* to the tentative answers. These persons may well be helpful with practical advice not only regarding possible improvement of the project, but also regarding appropriate ways of interesting potential users or colleagues in their own field.

"4. Provide for *continuous interaction* between grantor or contractor and grantee, from the beginning of the project through the period of dissemination and efforts to apply results. This may imply more technical training for Washington agency staff; more staff devoted to keeping in contact with projects and stimulating use of results; better interagency coordination; development of a clearinghouse and data retrieval system similar to that new in use by the Office of Education.

"5. Provide in the project methodology a built-in component on *reporting procedures* and statistical data which would permit subsequent evaluation and utilization.

"6. Summarize findings in *separate, brief, nontechnical*, and very readable reports, in addition to the full technical reports. Get *criticisms* of at least the summary reports from key representatives of potential users *before they are put in final form. Then* disseminate them widely to members of the various groups of potential consumers.

"7. Conduct *seminars* in conjunction with *site-visits*, where potential users can discuss the innovation, perhaps see it and "feel" it as something alive, and consider its applicability to other situations. The participants could have small group discussions of ways to adopt and perhaps to improve the innovation. Encourage each participant to tell about innovations in his own facility. Thus, each participant can become a *giver as well as a receiver* of information.

"8. Reduce wasteful proliferation and fragmentation of research, demonstrations, services and research utilization efforts by *developing better interagency exchanges* to discuss policies and problems as well as projects already underway or needed to help fill gaps in knowledge. Agencies also could work out common as well as unique strategies for utilization of promising findings. The more complex our society becomes and the more specialized the focus of different groups, disciplines and agencies, the greater the need for system integration to relate the parts to the whole.

"9. *Replicate* important demonstrations as a means of accumulating more experience and, through reaffirmation, giving them more impact.

"10. Identify and *recruit key practitioners* in various localities to apply the innovation to their own settings. Their example might be expected to *foster adoption* among others with whom they are influential. To facilitate application of the innovation, provide human links or *change agents* who are thoroughly familiar with it to serve as consultants to the institution which is interested in exploring, adopting or adapting the innovation. Use the project staff, where appropriate, for this change agent and consultant function.

"11. Invite attention to the potential *rewards* of adopting the innovation—for example, winning approval from key persons or sources, gaining prestige, reducing costs, improving services—so that the potential user can identify them with his self-interest.

"12. Obtain policy commitment from funding agencies to the idea that dissemination and utilization functions are an integral part of their research program. Implement this commitment by providing each research-support operating division *with a dissemination and utilization staff* of its own, in addition to an overall Bureau of Office capability. This operating division staff would work with agency program officers and sometimes with the demonstration project staffs to see that their procedures contain evaluation, dissemination, and implementation components. Unless steps are taken to promote implementation after research and development, and unless someone is responsible for seeing that such steps are taken, considerable lag can be expected.

"13. Evaluate the *financial considerations* involved in putting project findings to use; e.g., the extent to which the project might supplement or support existing, ongoing practices or services; the cost-benefits involved; the distinctions between the costs of adopting the critical or essential elements of a project and adding those which are marginally valuable."

Report of a National Seminar on Agricultural Education Program Development and Research, Aug. 9-13, 1965. Robert E. Taylor, The Center for Vocational and Technical Education, The Ohio State University, Columbus.

The objective of this seminar was to give state leaders in vocational agriculture and vocational education a chance to formulate plans to improve state programs of research and development. Seminar participants made no attempt to develop policies or guidelines for program development and research; instead, their time was devoted to examining various approaches. The 68 participants were particularly interested in the leadership role of state staffs in the following areas, as presented by Taylor:

1. Developing plans for comprehensive, continuing state programs of research and development.
2. Utilizing outside resources to assist in program development and research.
3. Planning, conducting and evaluating pilot programs.
4. Facilitating the adoption of new programs in agricultural education.
5. Identifying sources of funds for program development and research activities.
6. Reviewing and planning regional research programs.

Thirteen of the consultant staff members made presentations during the course of the seminar. Lloyd J. Phipps, chairman, Department of Agricultural Education, University of Illinois, spoke on "Developing Comprehensive State Programs of Research and Development." Commenting on the impact which automation in farming has had on manpower needs for production, Phipps said it will create a need for new educational services in agriculture and a "Pandora's Box" of demands for research, development and evaluation in agricultural education. It will be necessary for agricultural education research and development programs to adjust to the resulting changing manpower requirements, with emphasis on discovering the best way to utilize the talents of vocational agriculture teachers, influencing the American public opinion in favor of vocational and technical education, and realizing the importance of nonproduction agricultural job opportunities. Some specific programs needed in research and development are described briefly below.

1. Change the image of vocational agriculture so that the public realizes that vocational agriculture has an important role to play in the schools.
2. Learn how to expand agricultural education to include teaching skills in plant and animal science and related disciplines.
3. Learn how to teach agriculture as it applies to the everyday affairs of living.
4. Learn how the talents of vocational agriculture teachers can be effectively utilized in the schools' total vocational education program.
5. Learn how the talents of nonagricultural professional personnel such as other vocational teachers, guidance counselors, and nonvocational teachers, and administrators, can be utilized to ease the burden on agriculture teachers.
6. Learn how to effectively serve disadvantaged youth and adults.

Phipps also presented some specific recommendations for organization of research and development, some of which are (a) establishment of research and development committees at all institutions which prepare vocational teachers; (b) earmarking of time in agricultural education staff meetings for the planning and analysis of research and development projects; (c) regular scheduling of research and development meetings between teacher-educators and supervisors and teacher representatives: (d) encouragement of vocational agriculture teacher associations at state and national levels to establish research and development committees; and (e) encouragement of action research by teachers.

Duane M. Nielsen, director, Educational Resources Development Branch, U.S. Office of Education, spoke on "Opportunities and Responsibilities for Research and Development." He stated that in our rapidly changing society, "the supreme challenge to research and development in agricultural education is to innovate, experiment and demonstrate so that programs may more effectively serve a broadened clientele." He went on to discuss the reorganization of the U.S. Office of Education and to give a progress report on the fiscal 1965 activities under Section 4(c) of the Vocational Education Act of 1963.

Nielsen presented seven priority areas for research and development concentration in agricultural education. They are (a) program evaluation; (b) curriculum development and experimentation; (c) personal and social significance of work; (d) personnel recruitment and development; (e) program organization and administration; (f) adult and continuing education; and (g) occupational information and career choice.

John K. Coster, University of Nebraska, presented some remarks on "Developing Proposals for Funding Research and Development Projects." He pointed out that proposals which would receive consideration under Section 4(c) of the Vocational Education Act of 1963 would be those which would have the widest possible impact on the program of vocational and technical education for the nation.

Coster discussed in detail the important elements of a sound proposal that should be clearly stated: (a) the development of the problem; (b) the innovative qualities of the proposal; (c) the significance of the study for vocational and technical education; (d) the details of the design of the study; (e) an evaluation of the technique of collecting data to be used in measuring the effectiveness of the program and the selection of criterion measurement instruments; (f) the adequacy of personnel and facilities; and (g) the economic efficiency of the project. He concluded his remarks by presenting some guidelines for writing proposals, including several points to avoid.

Glenn Z. Stevens, The Pennsylvania State University, presented a summary of "Promising Research Directions in Off-Farm Agricultural Occupations." Information is now available on jobs that exist, anticipated employment trends and amounts of education needed for job entry. Stevens suggests four major directions for research:

1. The classification of job titles by fields of activity and the grouping of subject matter areas by communalities of knowledge, skills and human relations abilities.

2. The testing and evaluation of instructional materials on a continuing basis.

3. A survey of "supporting education" to determine its impact; *e.g.*, whether to teach distribution methodology, communications skills or human relations areas as an integral part of a product knowledge course or as separate courses.

4. The evaluation, recordkeeping and reporting systems in placement and adult counseling areas.

TOPIC THREE: Other Studies

See Bibliography for information on availability of complete studies

A Study of the Effectiveness of Directive Versus Non-Directive Vocational Teachers as a Function of Student Characteristics and Course Format. Bruce W. Tuckman. Rutgers—The State University, New Brunswick, N. J. 1968.

Vocational education typically is oriented toward individual instruction. This study was undertaken to ascertain answers to the questions of (a) with whom to use directive or non-directive teaching techniques, and (b) in what course organization. One purpose of this study was to collect data to indicate if teachers should receive training in directive and non-directive techniques in order to be able to use them when applicable to particular students. Tuckman also sought to discover if teachers should vary techniques to match the various learning environments, e.g., use one technique in the shop or laboratory and the other technique in the classroom.

The stated objectives of the study were as follows:

(1) To develop and validate a measure of teacher directiveness.

(2) To test the following hypotheses: (a) Highly directive-oriented students perform better in courses under directive teachers; they prefer such teachers and are more satisfied in their courses; (b) Non-directive-oriented students prefer non-directive teachers, perform better in their courses and receive more satisfaction from these teachers; (c) Directive-oriented student effects will come mainly from the classroom setting, while the non-directive-oriented student effects will come mainly from the shop setting.

The first phase of this study included the development of a *definition* of teacher directiveness and non-directiveness, a *measure* of teacher directiveness and a demonstration of the *validity* of the instrument. The second phase was concerned with the use of this device to test the hypotheses given above.

After a thorough study of pertinent literature, the following behaviors were associated with *directive* teaching, indicating that the directive teacher is structured, absolute and formal:

Structure
(1) formal planning and structuring of the course
(2) minimizing informal work and group work
(3) structuring group activity when it is used
(4) rigidly structuring individual and classroom activity
(5) requiring factual knowledge from students based on absolute sources

Interpersonal
(1) using absolute and justifiable punishment
(2) minimizing the opportunity to make and learn from mistakes
(3) maintaining a formal classroom atmosphere
(4) maintaining a formal relationship with students
(5) taking absolute responsibility for grades

Inasmuch as validity and reliability of student rating scales are generally known to be high, Tuckman designed the Student Perception of Teacher Style scale (SPOTS) to obtain a description of teacher behavior. The SPOTS scale contains 32 items which describe classroom behavior and was completed by 363 students in 22 classrooms. To validate the student rating, an observer rating scale was developed, based on the operational definition of directive teaching given above. Two observers completed an independent set of ratings on each cooperating teacher after a full class period of observation.

To test the hypotheses, 514 male students (all of whom were in their junior or senior years and pursuing an occupational course of study) filled out a revised SPOTS on 40 male teachers. Of these teachers, 24 were chosen for inclusion in the study (12 taught shop courses and 12 taught nonshop courses). Based on their revised SPOTS scores, these teachers were assigned to either a directive or a non-directive group. Two weeks before the end of the school year, data for three dependent measures were collected which described course satisfaction, teacher preference and course grade. The students also completed the Interpersonal Topical Inventory and the F-Scale (measurements of personality) in order that they could be classified as abstract or concrete information processors and an authoritarian or non-authoritarian in attitude.

Tuckman reached the following conclusions:

1. In an absolute sense, teachers of vocational subjects were *more non-directive* than teachers of non-vocational subjects.

2. Students were more satisfied with and preferred non-directive teachers to directive teachers, both in the vocational and non-vocational areas. However, students' preference for non-directive teachers was more marked among vocational teachers than among non-vocational teachers.

3. Students earned higher grades from non-directive non-vocational teachers than they did from directive non-vocational teachers. (Grades earned from the two groups of vocational teachers, however, were comparable.)

4. Abstract students showed a marked preference for non-directive vocational teachers over directive ones while concrete students showed approximately equal preference for the two groups.

5. Non-authoritarian students showed more marked course satisfaction and higher grades under non-directive

non-vocational teachers as compared to directive teachers than did authoritarian students. That is, non-authoritarian students showed greater discrimination and a more differentiated outcome in favor of non-directive teachers than did their more authoritarian counterparts.

6. Students preferred and were more satisfied with vocational teachers than non-vocational teachers but they earned slightly higher grades from non-vocational teachers.

Based on his conclusions, Tuckman offers the following four recommendations:

1. Teacher education should offer more information about non-directive teaching; there should be opportunity to utilize the information.

2. Teacher education should emphasize the importance of utilizing non-directive and directive methods as they pertain to the individual student. Tuckman feels this approach is particularly appropriate in vocational schools where more emphasis should be given to individual differences.

3. Non-vocational subject courses should be modified to make them more meaningful and palatable in order to overcome the general dissatisfaction of the vocational student.

4. Research and development related to individual student differences in various learning environments should be encouraged.

Research Design To Forecast Demand for New Types of Technicians in an Industry. John L. Fulmer, Robert E. Green and Paul B. Han, Georgia Institute of Technology, Atlanta. February 29, 1964.

In order for skilled manpower to keep pace with the increasingly rapid effects of technological advances it is important to be able to forecast the future demand for such manpower. Such forecasting is vital in order to effectively anticipate training demands. The research design developed in this study was planned to detect, define and forecast the need for emerging new technicians in any given area. Another objective of this design was to provide information relevant to the upgrading and displacement of skilled workers, and about new types of skilled workers needed to support the new technician.

The authors conclude that new technicians can be detected only through the use of detailed personal interviews with company executives who are concerned with technological development. Two questionnaires were developed for use in such interviews: one is nonstructured and deals with current technological problems, the other is structured and deals with job specification details and training requirements for new technicians.

Forecasting the need for new technicians can also be accomplished through the use of personal interviews with top technical personnel in order to determine major technological problems and their relationship to skill requirements in the different industries. This should be followed by a questionnaire survey of a larger number of firms in order to test the ability of top management in a particular industry to recognize its need for new technicians.

As part of Phase One, the authors utilized data from the Georgia Skill Study and obtained specific results for the state's textile industry through the use of the intensive interviews mentioned above. Top management and technical personnel of several textile firms in Georgia were interviewed during the summer and fall of 1962.

To obtain a summarization of the major technological problems in the industry the interviewees were presented with a form, "Analysis of New Types of Technical Workers for a Sample of Companies," in which they were asked to choose which of six alternative advantages would accrue to their respective companies as a result of exploiting technological change. The six advantages presented were as follows:

1. Cost savings from newer processes.
2. First entry into the market with improved products or new products.
3. Gain in market share from newer products.
4. High rate of profits from rising volume.
5. Competitors being kept off balance by faster adoptions of technological change.
6. Pride or organization from faster adoption of technology.

In addition, they were requested to check off a list of 12 technological changes already affecting the textile industry (obtained from previous interviews with a smaller sample of textile firm representatives), noting those which affected their own companies. Two examples are given below.

- The trend toward expensive, complex machinery, involving electronic mechanisms and often also hydraulic or pneumatic, which enlarge the problem of preventive maintenance.
- The growing importance of the computer for data processing and management controls. In time, computer use for production planning will grow.

The same respondents were asked to list any additional technological problems they had. The original list of 12 was accepted as being representative of technological problems now affecting the textile industry.

Phase One also involved the identification of new types of technicians. Eleven plant job titles of new technicians were determined, one of which is the Chemical Process Control Technician who operates between staff chemists and ma-

chine operators in testing or analyzing chemicals and materials entering and leaving process.

A field investigation of the problem was conducted from July to September 1963, during which time Fulmer and Green sought the most effective ways to communicate information on technological problems and job specifications of new technicians to various types and sizes of textile companies, and to obtain information through questionnaires about the need for new technicians in these firms.

They contacted 29 companies through personal interviews, single letter with questionnaire and materials, and a two-phase letter. The usual methods of follow-up were performed. The response rate was as follows: (a) personal interviews—79 percent; (b) single letter—27 percent; (c) two-phase letter—75 percent. They concluded that a response is often dependent upon gaining the attention of a company president, which can be done by having recognized statewide sponsors of the study. Because of the complexity of communication, multi-unit firms should be handled by personal interview. When using an initial contact letter, it should state the objectives of the study and show clearly how the company can benefit by responding.

PLAIN TALK

AS IT IS VERY EVIDENT from previous issues of *Research Visibility*, the monthly chatter from *"Plain Talk"* seeks to stimulate *communication*, particularly that communication about research and its relationship to vocational and technical education. At the outset it is realized that some of *RV's* communication may be a repetition of information which may have been appeared elsewhere; or it may be a restatement of emphasis previously made; and finally, it is not above making an observation or airing a grievance in reflection of an undesirable condition which may inhibit or thwart the research and development process. Hopefully, in this issue none of these communication modes are predominant and will assume the upper hand.

The Vocational Research Movement in Transition. Begging final evaluation of research productivity which will never come, it is felt that the development of research in vocational and technical education is momentarily in a state of flux. The VEA of 1963 has been superseded by the VEAs of 1968. What has our research community learned (and produced) in the half-decade? What are the implications for research and development of VEA '68? To what extent is our research manpower in the position to fully exploit and mount research provisions for a pervasive program? Are we adequately organized to accomplish the research task?

A number of wholesome influences, evidence, alleviations (possibly some solutions) may be apprized on the *plus* side of the ledger. We are older, consequently more experienced, and wiser. Through the influence of institutions, agencies, research centers, research coordinating units, professional research organizations, etc., there is better organization of effort and unity of purpose. We have more than cut our baby teeth on grantsmanship. We have possibly learned that research does not exist in a vacuum, as a separate entity, any more than do other aspects, or legislative provisions, of the acts which support our program.

Of course, there is a *negative* side of the ledger. Undoubtedly, a long and troublesome list of *minus* anecdotes might make up its historical record, but the job to be done disparages the preservation of errors and calculated risks.

It is hoped that in the here-and-now and in the preparation for new achievements of the new vocational education legislation that the research segment of the vocational community will become involved in the *totality* of the challenge. The involvement is both individual and group, and professional throughout. Among many professional research groups which can be highly instrumental, AVERA (American Vocational Education Research Association) and the Department of Research and Evaluation of the American Vocational Association should be rallying points for the organizational thrust. The latter, especially, as a newcomer to AVA organization and activity with its close tie of affiliation to AVA divisions, has unlimited potential if fortified with interest, hard work and the formulation of an on-going program of around the calendar activity of research and its intimate relationship to *evaluation.*

A Tip of the RV Hat to the AVERA Beacon. The *Beacon* is helping to close the credibility gap in communications. It reports interesting developments and problems of the junior-community college, highlights of VEA 1968, bio-medical curriculum development studies, pilot revision of technical curricula in Georgia AVTS's, and member support of a new AVERA research publication, *Vocational Education Research Quarterly,* to be launched in the near future. The *Beacon* also introduces a recent newcomer to the educational publications field:

> *The Junior College Research Review,* a monthly report on research findings and recommendations, is compiled each month by the ERIC Clearinghouse for Junior College Information located at the University of California at Los Angeles. In the new publication are listed abstracts of documents, bibliographies, and specialized materials, in the community college field. Subscriptions may be obtained by addressing the ERIC Clearinghouse for Junior College Information, UCLA, Los Angeles, California, 90024.

How Are Your International Vocational Education Horizons? The November-December 1968 issue of *ILO Panorama* is interesting (and important) literature to the vocationalist. Among its announcements of new ILO (International Labour Office) publications are *Labour and Automation: Bulletin No. 7, The ILO and Safety and Health of*

Workers, and *The ILO and Youth,* and there are full length articles about factory-made houses, Pindorama and the "danger down the mine." *Panorama* is free for the asking at ILO Regional Offices, United Nations, 345 E. 46th St., New York, N.Y., 10017 (limited distribution only), or from the Washington Branch Office, 917-15th St., N.W., Washington, D.C. 20005.

Two publications from the Swedish Council for Personnel Administration, *Research Projects 1968,* and *Research, Consultation Information* will be of value to researchers, consultants and educators interested in leadership and supervisory development. *The PA Council* has been active since 1952 in the dissemination of knowledge of the behavioral sciences and personnel administration. Both publications describe the work of the Council and may be requested from the PA-Council, Box 5157, Stockholm 5, Sweden.

Now It's the "Convergence Technique" in Research Planning and Strategy. If our readers have not already seen evidence of this new technique in *Management Science* of April 1967, and the September 1968 issue of *Educational Researcher,* official newsletter of the American Educational Research Association, there is more about the convergence technique in the October 1968 issue of the AERA Newsletter. Briefly, the technique is one which is borrowed from the National Cancer Institute for a USOE Bureau of Research trial under a grant with Phi Delta Kappa. The "promising tool for the strategic planning of a complex research effort" will be put to work on basic research of reading, but that the technique has strong implications for all educational research is the hypothesis of the Phi Delta Kappa planning grant. The essence of the new methodology is *strategy of research program* instead of emphasis upon research *tactics.* In relation to our current stage and need of research planning in vocational and technical education, several statements from biomedical researchers Baker and Carrese *Management Science* (April 1967) are illustrative:

> The reviews associated with the allocation of resources for the support of medical research grants focus primarily on tactical segments, with less emphasis given to program strategies. In this framework, most of the review process utilites criteria for assessments that are suitable for the evaluation of tactical quality, but not for stertegic relevance, primarily because each grant application is reviewed individually and usully in scientific disciplinary frame-of-reference. That a project is judged to be excellent from a scientific discipline frame-of-reference does not necessarily mean that it is of strategic significance from a program standpoint· Conversely, a project that may have a lower priority in the specialized discipline frame-of-reference may be critical for program accomplishment because the data on products produced are vitally needed for the total program implementation, or because the work interrelates closely with one or more other projects.

Is the dilemma of vocational education research and research administration similarly described?

MARCH ISSUE . . . Next month, *Research Visibility* will focus its attention on "The Vocational Education Curriculum."

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"Study of Agriculturally Related Occupations in Selected Counties of Idaho." Robert W. Richmond, Idaho Occupational Research Coordinating Unit. October 1967. 69 pages. (ERIC # ED 016 825, MF-$1.50, HC-$2.84.)

"Health Occupations Education: Abstracts of Iowa Research, 1960-1968." Thomas F. Tibbitts, Iowa Research Coordinating Unit, Des Moines, Iowa. 1968. 41 pages. (VT 007 154, for ERIC # see March 1969 *Research in Education*.)

"Concepts, Strategies, and Priorities for Research in Educational Manpower: A Symposium on Educational Manpower. Final Report." National Education Association, Washington, D.C. June 1967. 71 pages. (ERIC # ED 013 778, MF-$0.50, HC-$2.92.)

"A Study to Determine the Educational Interests of Adults in Sioux City, Iowa, Who Did Not Complete High School." (Ed.D. thesis) Cox, Robert P. South Dakota University, Vermillion. Aug. 1965. Available from University Microfilms, Ann Arbor, Mich. Order No. 66-1876. Microfilm $3.00, Xerography $8.80. 197 pages.

"Research Studies With Implications for Adult Education, Mountain-Plains Region, 1945-1966." Burrichter, Arthur, Jensen, Glenn. Wyoming University, Department of Adult Education and Instructional Services. March 1967. 84 pages. (ERIC # ED 012 413. MC-$0.50, HC-$3.36.)

"Research and Investigations in Adult Education." ERIC Clearinghouse on Adult Education, Syracuse, N.Y. Summer 1967 (ERIC # ED 012 877, MF-$0.50, HC-$2.64.) 66 pages.

"Aerospace Bibliography. Fourth Edition." National Aeronautics and Space Administration, Washington, D.C. Jan. 1968. 64 pages. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Price: 40 cents.

"Fact Book: Office of Education Programs." Office of Administration, Office of Education, U.S. Department of Health, Education, and Welfare, Washington, D.C. June 1968. 100 pages. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20202. Price: $1.00.

"Manpower Education in a Growing Economy." Robert L. Darcy and Phillip E. Powell. Ohio University, Athens. Aug. 1968. 70 pages. Inquiries about copies should be addressed to: Manpower Education, Division of Research, Copeland Hall, College of Business Administration, Ohio University, Athens, Ohio 45701.

"Research Projects 1968." The Swedish Council for Personnel Administration. 46 pages. Available from Research Department, PA-Council, Box 5157, 102 44 Stockholm 5, Sweden.

"The ILO and Youth." International Labour Organization. 1968. Available free of charge from International Labour Office, Washington Branch Office, 917-15th St., N.W., Washington, D.C. 20005.

"Labour and Automation: Bulletin No. 7; Manpower Adjustment Programmes: Canada, Italy, Japan." 1968. Available from International Labour Office, Washington Branch Office, 917-15th St., N.W., Washington, D.C. 20005. Price: $2.00.

DOCUMENT SOURCES

The material reported on in *Research Visibility* may be obtained from several sources. The source of each publication is indicated in each entry. The key to the abbreviations used there and instructions for obtaining the publications are as follows:

CFSTI—Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. Copies of reports with this symbol may be purchased for $3 each (paper) or 65 cents (microfiche). Send remittance with order directly to the Clearinghouse and specify the accession number (AD or PB plus a 6-digit number) given in the listing.

ERIC—Educational Resources Information Center, EDRS, c/o NCR Co., 4936 Fairmont Ave., Bethesda, Maryland 20014. Copies priced according to the number of pages. The MF price in the listing is for microfiche; the HC price is for paper copies. Send remittance with order directly to ERIC-EDRS and specify the accession number (ED plus a 6-digit number) given in the listing. *How to Use ERIC*, a recent brochure prepared by the Office of Education, is available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402; the catalog number is FS 5.212.12037; price: 20 cents.

GPO—Government Printing Office. Send orders directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, with remittance for specified amount.

MA—Manpower Administration. Single copies free upon request to U.S. Department of Labor, Manpower Administration, Associate Manpower Administrator, Washington, D. C. 20210

OTHER SOURCES—Where indicated the publication may be obtained directly from the publisher at the listed price.

RESEARCH VISIBILITY

Synthesis / Application / Dissemination

THE VOCATIONAL EDUCATION CURRICULUM

THE EDITORS OF *Research Visibility* continue to be highly sensitive to ideas and commentary about research dissemination. The subject of research dissemination generally must be periodically re-examined and its processes improved. No doubt—to proverbially add a straw that might tax the camel's back—we need a great deal more communication and discussion of the many details and benefits of research dissemination and its ultimate relationship to research utilization.

The *Washington Monitor* (Dec. 2, 1968), which is the supplement to *Education U.S.A.* of the National School Public Relations Association, made a number of constructive comments about research dissemination, particularly as it is related to the output of R&D Centers. Of great importance, the *Monitor* announced the availability of an issue of the *Journal of Research and Development in Education** which is probably the *first* published assessment of the output of the centers (450 publications and reports of the nine R&D Centers funded by the U.S. Office of Education). The assessment indicates that too little of the "prolific output" has filtered directly into the classroom. But, happily, there are some major exceptions in the $40 million program:

* Vol. 1, No. 4, University of Georgia, Athens, Ga. 30601; $2 single issue.

- The University of Wisconsin's Cognitive Learning Center (Patterns in Arithmetic for Elementary Students).
- The University of Pittsburgh's Learning Research and Development Center (Individually Prescribed Instruction project).
- Stanford University (Microteaching Technique).
- Johns Hopkins University's Center for the Study of Social Organization of Schools and the Learning Process (follow-up studies of the Coleman Report, *The Equality of Educational Opportunity*).

Specifically related to the importance of dissemination, the *Monitor* quotes two evaluators (Yale's S.M. Brownell and Chicago's B.S. Bloom) who are in agreement that one of the weakest areas of the Centers is dissemination. "Dissemination through issuance of reports which are not read is an exercise in futility," states Brownell, while Bloom indicates that he is "skeptical" about university establishments as disseminators except to other universities and researchers. The most serious shortcoming of the Centers, according to Bloom, is the lack of dynamic models or theories. Brownell has a prescription for improvement:

> . . . more advance planning that takes school personnel as equal partners in research and gives schools a timetable for field testing and demonstration; priorities that relate to the needs of school personnel; and less emphasis upon the numbers of research studies and more upon quality control. Perhaps on each Center staff there

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EDITOR'S NOTE

Research Visibility is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The *Research Visibility* report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-070633, project 7-0633; "Synthesis and Application of Research Fundings in Vocational Education").

George L. Brandon, professor in residence (Pennsylvania State University) is editor of *Research Visibility*. He is assisted in the preparation of these reports by Research Assistant Anne Ware.

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needs to be a tough-minded person competent in research and knowledge about school practices and problems who can and will challenge each proposal with "So what?" and confront conclusions with "What is the evidence?"

Research and Curriculum Development. Generally, vocationalists have had a strong bond in learning and its relationship to curriculum development. There has been strong insistence, however poorly verbalized and explained to the general public and the academic community, that learning in vocational and technical education and the practical arts is based upon *direct* experience. This pragmatic notion essentially means that education in these areas takes on *reality*—actual materials, hand and machine processes, industrial and business organization, farm and home projects, shop and laboratory experimentation, etc. In short, education in these areas is *relevant.* In many instances, the vocational cooperative education plan is used to guarantee that education is real. Regardless of the soundness of this theory of learning, it does compound the complexity of the process of curriculum making and, even more so, the research connected with it.

Traditionally, vocational and technical curriculum development has lacked the research effort necessary to create and establish models and theoretical bases; with few exceptions, surveys and status studies have been the focal points of inquiry to determine what should be taught in vocational education. Happily, and with the realization by many vocational educators that there is a real need for basic research, especially that related to curriculum development, considerable effort has been made during the past five or six years to direct investigation to curriculum development and the theory and model-making process.

At least five trends or groups of research activities are noted in this respect: (a) the cluster or family of occupations technique, (b) transferability of skills and behavior, (c) competencies and their comparison in several occupations, (d) industrial functions and their relations to common competencies of all occupations, and (e) the construction of curriculum guides. Much of this effort will possibly be the target of considerable criticism that it is too theoretical, sophisticated, "Cloud Nine," and not immediately applicable to practitioners' problems on the firing line. Possibly some of this criticism may be deserved; part of it may be the by-product of inadequate and unclear reporting, lack of communication in the same "language," or refusal of the researcher to become bogged down with the realities of practicing problems.

Notwithstanding, the importance, complexity and urgency of the curriculum development problem to the entire vocational and technical education community strongly demand some research breakthroughs which will modernize the process of curriculum development. Until modernization occurs, the vocational curriculum assumes the risk of lagging far behind the psychology of learning by direct experience and the vital combination of learning by doing and functional related information and technology. The amount and nature of research focused in the curriculum direction should, indeed, be *bold* and *imaginative!*

TOPIC ONE: Curriculum Development Projects

See Bibliography for information on availability of complete studies

An Empirical Procedure for Identifying and Determining the Structure of the Technical Concepts Possessed by Selected Workers. Jerome Moss, Jr., Brandon B. Smith and David J. Pucel. Minnesota Research Coordination Unit in Occupational Education. University of Minnesota, Minneapolis. 1968.

An accurate description of cognitive competencies which are actually required for satisfactory job performance is a critical first step in the process of curriculum development. The studies at the Minnesota Research Coordination Unit (RCU) were concerned with developing and testing an "empirical, objective procedure for identifying both the technical concepts actually possessed by workers on-the-job *and* their psychological structure" (a methodology or curriculum tool that would produce a "map" of a particular worker's technical concepts).

The studies were based on several assumptions, some of which are given below:

1. There are bodies of knowledge which are related to the quality of performance in a given occupation.
2. The technical knowledge of an occupation possessed by an individual is composed of concepts of the things, processes and units of measure of that occupation.
3. Individuals organize their technical concepts into an integrated network or structure.
4. Terms or words can be viewed as verbal labels for underlying concepts.
5. Workers who are performing satisfactorily in an occupation have acquired the verbal tags necessary to identify their concepts.
6. The *associative* meaning of a concept is defined as the total free associative response distribution which a given stimulus word elicits.
7. The technical vocabulary of an occupation, which identifies the technical concepts of that occupation, can be determined by repeated administrations of a free-association instrument.

In other words, the authors believe that if good workers can be identified, free association methodology can be used to determine their technical conceptual structure. This information can make possible the mapping of the cognitive goals of instruction which can then be applied to curriculum development.

Two studies were conducted by the Minnesota RCU that were designed to test a free association methodology to find out if it could produce a reliable conceptual map with face validity for a specific occupation.

Radio and television repairmen with at least three years of trade experience who worked under similar conditions were designated by their supervisors as being flexible or

inflexible, the former being those who "satisfactorily performed a greater variety of repair tasks" than the latter. Several radio-television vocational instructors developed a list of 450 major technical words, from which 163 words were selected at random. These stimulus words were presented to the repairmen in booklet form with space allowed for them to write 25 free association responses to each stimulus word. The resulting "map" for the flexible worker group differed significantly from the "map" for the inflexible worker group. The flexible workers gave different responses; they also gave more responses than did the inflexible worker group.

The authors summarize that the studies indicate that apparently the associative methodology is (a) capable of empirically and reliably generating a conceptual map of a given occupation which appears to have face validity for experts in that occupation, and (b) sensitive enough to differentiate between workmen performing the same tasks at different qualitative levels. In addition, they realize that this methodology does not provide the detailed technical content that would be included in a curriculum.

However, they do feel that the conceptual maps produced as a result of these studies can be applied to occupational education in the following ways: (a) as a guide for selecting and organizing curriculum content; (b) to identify the associative concepts, and the conceptual relationships that are common to a group of occupations; (c) as criteria for evaluating student conceptual development or teacher's occupational competence, and (d) to explain and predict behavior, and to plan appropriate educational experiences designed to modify behavior.

An Experimental Course of Study in Supermarket Merchandising and Management: A One-Year Course of Study. Gordon E. Van Hooft. The University of the State of New York and The State Education Department, Albany. 1967.

In terms of dollar volume of sales and number of employees, the largest single retail enterprise in the country is the food industry. Supermarkets are responsible for 90 percent of retail food sales and the employment of 80 percent of food industry employees. The guidelines presented for this supermarket merchandising and management course include the study of food production, the history of supermarket development, preparation of entry-level supermarket trainees, organizational structure of the industry, management positions and financing, and development and supervision of an independent supermarket.

It is anticipated that a course which follows this syllabus will attain the following objectives: (a) acquaint students with the retail food industry; (b) prepare students for initial employment and future advancement; (c) improve techniques of modern supermarket management; (d) develop managerial skills applicable to other occupational areas, and (e) promote a better understanding of socio-economic responsibilities in a free competitive economy.

The course is designed to be offered in the twelfth grade for two semesters as part of an overall distributive education program. A sample cooperative curriculum follows:

	UNITS
Introduction to business	1
Business arithmetic	1
Business law or Bookkeeping 1	1
Distribution 1	1
Distribution 2 and/or Supermarket Merchandising and Management	1 or 2
Store experience	½, 1, 1½ or 2
	5½, 6, 6½, or 8

Details are given for instruction in such areas as food consumption, food production, supermarket location, and grocery, meat, produce, dairy, frozen food, bakery, and nonfood departments, checkout operations, and fiscal matters. A short bibliography of publications and teaching aids is given for each area.

Electro-Mechanical Technology. Final Report. Maurice W. Roney. The Oklahoma State University, Stillwater. 1966.

Part I, "A Field Study of Electro-Mechanical Technician Occupations," had the following objectives:

—To obtain a measure of the need for technicians with skill and knowledge encompassing both mechanical and electrical principles and applications.

—To identify skill and knowledge essential to electro-mechanical technician occupations, so that these requirements could form a basis for the development of a preparatory training program of approximately two years.

—To develop a method of occupational analysis for new and emerging occupations which require skills that cut across traditional fields of educational specialization.

In general, the study succeeded in its major objectives of identifying occupational and educational needs in the new and emerging occupation of electro-mechanical technology, and this information was used in the preparation of Part II of this study.

In Part II, "A Post-High School Technical Curriculum" has a mathematics and science base with applications in electricity, electronics and mechanics. The emphasis is on the interrelationship of electronic and mechanical phenomena in systems and devices in which those phenomena are interdependent. This knowledge is mandatory for the emerging occupations. In these occupations there are four general requirements:

—The training should put emphasis on electrical and mechanical principles rather than on specific applications of these principles.

—Communication skills should be given special attention.

—Whenever possible, electrical and mechanical principles should be studied together, and not as separate entities.

—Principles of electrical and mechanical physics are basic tools in the work of electro-mechanical technicians and all technical instruction should develop analytical skills for which these tools are fundamental. In addition, there is an increasing need for the technician to work with new applications of other physical sciences, such as optical equipment, thermal energy devices, hydraulic and pneumatic controls, and a wide variety of measuring instruments.

The curriculum content and organization are described in detail for a four-semester course. Technical courses make up 64 percent of the total curriculum, and communications and economics make up 10 percent.

Roney also describes faculty requirements, and instructional materials. He presents a detailed description of suggested laboratory facilities, and he concludes by presenting five major recommendations:

1. New programs of electro-mechanical technology should be planned and implemented as soon as possible.
2. The major effort in developing new programs for electro-mechanical technicians should be devoted to two-year associate degree level curriculums.
3. Schools with existing programs of electronic and mechanical technology should not expect to develop electro-mechanical technology programs by assembling existing courses and utilizing existing instructional staff without further training.
4. An extensive research project should be planned and carried out to further develop and document the instructional plan proposed for the curriculum in electro-mechanical technology.
5. Research studies should be made in other emerging occupational fields which require new combinations of technical skills.

The appendixes to this document contain a chart showing employment and projected needs for technicians in 93 industrial organizations through 1970, and an example of unified concepts.

Hospitality Education Curriculum Development Project. Final Report. Carolyn Dommer. College of Education. Michigan State University, East Lansing, Mich. 1967.

The basic concern of this project—to plan the present and future direction for developing vocational education programs in home economics—led to the formulation of seven major objectives:

1. To intensify the involvement of home economics in developing occupationally oriented educational programs.
2. To explore the program developmental potential of emerging occupational areas related to home economics.
3. To survey the practices employed in developing home economics occupational programs.
4. To examine selected approaches for preparing teachers to develop the occupational phase of the home economics program.
5. To develop, test and refine curriculum and instructional materials for selected occupational areas.
6. To assess the nature of key factors involved in developing occupational education programs involving home economics.
7. To create a greater awareness and deeper understanding of the components and value of a sound occupational education program among educators and citizens.

This phase of the research and development program has as its underlying purpose an exploratory vocational curriculum project. Procedures relating to the following functions were developed for this project: (a) project organization, (b) personnel development, (c) preparation of instructional material, (d) curriculum planning, (e) data collection and analysis, and (f) reporting project activities and outcomes. There were several steps involved in curriculum and instructional materials development, all of which were influenced by the general guideline that curriculum development and innovation in vocational education should be a cooperative endeavor involving the public school, other public agencies and organizations, and industrial and labor interests.

As of the date this document was published the materials developed were limited to those for internal use by the project staff or by teachers and administrators in the local schools, e.g. "working draft" program development guidelines, reference lists, bibliographies of teaching aids, and collections of job descriptions. Dommer hopes that these materials will result in the publication of a "handbook of promising practices and procedures to be used as guidelines in establishing and conducting future vocational programs." A handbook of this nature could be expected sometime after the 1967-68 school year.

The appendixes to this report contain suggested program patterns for participating in the hospitality education project, examples of occupational opportunities in the hospitality industry, conditions for participation in the project, a summary of activities of the project, and project activities of the project (through June 30, 1968).

Curriculum Development. Lloyd J. Phipps and Rupert N. Evans, University of Illinois, Urbana, Ill.

In this chapter from the October 1968 issue of *Review of Educational Research*, which is devoted to vocational, technical and practical arts education, Phipps and Evans have presented a discussion of research related to curriculum development conducted since 1962. During this period several studies have been completed which, generally speaking, were more carefully designed than those completed earlier. The complexity of the field of curriculum development has forced researchers to utilize statistical tools and research designs adapted to meet its particular needs.

The literature reviewed by Phipps and Evans shows that this research has emphasized the following areas:

—The identification of content common to clusters of occupations and to all kinds of work.

—The development of curriculum for students with special needs.

—The adaptation of curriculums to changes in educational approaches and technology.

—The identification of curriculum changes required by technological developments.

—Attention to occupational areas that previously were overlooked or considered unworthy.

Phipps and Evans have included a bibliography of 67 major research studies and have noted that these are only a few of the studies conducted in this period.

Donald Maley attempted to define the "cluster concept" as it applies to the preparation of workers for a family or cluster of occupations. The results are reported in *An*

Investigation and Development of the "Cluster Concept" as a Program in Vocational Education at the Secondary School Level; College Park: Univ. of Maryland, 1966; 135 pages.

Charles V. Matthews and others developed *A Curriculum for Dropout-Prone Students—Delinquency Study and Youth Development Project;* Edwardsville: Southern Illinois University, 1966; 158 pages.

The new educational approach, team teaching, was studied by Raymond Agan and reported in "Vocational Guidance is Stressed," *Kansas State Teacher* 75:25-27; May 1967.

The use of the computer to allow for more flexibility in class scheduling was reported by Dwight W. Allen in *Flexibility for Vocational Education Through Computer Scheduling;* Stanford, Calif., Stanford University, 1966. 38 pages.

Cleo A. Dupy and William L. Hull gave attention to a previously overlooked occupational area in their study *Problems of Implementing Agricultural Occupations Programs in Twenty-Eight Selected Vocational Agriculture Departments.* Stillwater: Oklahoma State University, 1966; 26 pages.

TOPIC TWO: Curriculum Workshops

See Bibliography for information on availability of complete studies

Development of Post-High School Wage-Earning Programs in Home Economics Education Utilizing the Resource Guide, Care and Guidance of Children. Final Report. Ruth J. Dales and Anne G. Buis. Florida State University, Tallahassee, Fla. June 1968.

The School of Home Economics, Florida State University, sponsored a National Summer Institute, July 5-28, 1967, which had the following purposes: (a) to provide assistance to persons responsible for curriculum which prepares for wage-earning in the child development area at the post-high school level; (b) to help persons responsible for these programs to make use of the curriculum resource guide, *Care and Guidance of Children,* developed recently by personnel at Pennsylvania State University, and (c) to evaluate the effectiveness of the Institute by follow-up of the participants.

The forty participants, from 34 states, represented State Departments of Education, State Departments of Public Welfare, junior college and four-year college faculties, and vocational-technical schools. Some were already involved in child development in post-high school wage-earning, and others were anticipating such involvement for themselves. The Institute utilized discussions, lectures, multisensory aids, and field trips. Six months later the participants were asked to evaluate it on a four-page form. The responses are briefly summarized below.

Junior college participants: Several were instrumental in the planning, organizing and establishing of post-high school curricula in child development in their respective junior colleges and in promoting the inclusion of similar curricula in other junior colleges in their states. Some were active with inservice training courses in the child development area. They were also involved as consultants in planning new buildings for child development programs, and in revising job descriptions for teaching personnel.

Four-year college participants: One participant was previously involved in a two-year program; after the Institute, two others developed curricula that were accepted for two-year post-high school programs. They have all shared their information and experiences by reporting to their colleagues, their administrators and to various civic and professional organizations.

Area vocational-technical school participants: These participants returned to their teaching positions. One spoke on two television programs; another produced a 45 minute video tape on the development of wage-earning programs which was shown at the state meetings of home economics teachers, administrators and counselors. Some of the participants are making surveys to determine employment possibilities and the need for post-high school classes.

High school teachers: Several have been used to work on curriculum for a two-year program. All shared materials with administrators and fellow teachers. One assisted with a district survey for child care aides and another worked with an area supervisor in the preparation of a suggested list of files and books.

Administrators: There were 10 state administrators working in home economics positions at the state level. All shared their experiences with their colleagues, heads of state and local agencies and organizations and personnel at all levels concerned with preschool children. Some have acted as consultants in helping interested administrators and personnel to work on facilities and curricula, including

upgrading programs. They are attempting to construct evaluation instruments, determine minimum standards, provide more inservice training programs, revise course outlines, and reorganize curricula.

In summary, it is felt that the Institute participants are now more aware of "what a post-high school program in child development should be; this awareness has given them security and confidence to move with enthusiasm toward clearly defined goals." The appendixes to this document contain descriptions of programs in child development now available in post-high school programs, qualifications and duties of personnel needed in post-high school programs, library references, sources of pamphlets, lists of periodicals and films, and recipes for paint and clay. Also included are descriptions of nursery schools and kindergartens, health policies, a proposed budget, and examples of curricula.

Suggested 2-Year Curriculum — Modes to Junior College, Home Economics Department 1967-68 Nursery School Assistant Teaching

First Semester	*Units*
H.E.—Child Development	3
Orientation	1
English Composition	3
English—Children's Lit.	2
Speech—Ideas, Issues and The Arts	½
Speech	3
Art (for young children)	2
Physical Education	½
	15

Second Semester	*Units*
H.E.—Marriage and Family	2
H.E.—Guidance of Young Children	2-6
Music—Fundamentals	2
Music—Elem. Piano	1
Spanish—Intro. to Spanish	3
Sociology	3
Physical Education	½
	15½-17½

Third Semester	*Units*
H.E.—Nutrition	2
H.E.—Equipment and Materials for Young Children	2-6
H.E.—Child, Family, Community, Inter-relation, ships	2 3
American Government	3
Physical Education	½
	15½-16½

Fourth Semester	*Units*
H.E.—Work Experience	2
Health Education	2
U. S. History	3
Science	3
Psychology	3
Elective	3
Physical Education	½
	16½

TOPIC THREE: Laboratories and Materials

See Bibliography for information on availability of complete studies

Pretechnical Post-High School Programs: A Suggested Guide. Walter J. Brooking. U.S. Office of Education. Washington, D.C. 1967.

An increasingly larger percentage of the Nation's work force is required to obtain an education preparing them for more technical employment as a result of the impact of technological advances.

Thousands of technician jobs remain unfilled while thousands of workers who are unskilled or untrained are seeking employment. Many youths who are capable of mastering the curriculum which is necessary to become highly skilled technicians have poorly developed scholastic skills.

Because the academic requirements for entering a high quality technical program are so similar to those for science or engineering baccalaureate degree programs, these youths are unprepared to engage in such study.

There are various reasons for a youth not developing the necessary academic skills: (a) he was graduated from high school without taking some of the required math and/or science courses; (b) he was graduated from high school with underdeveloped skills in language, arithmetic and organized science, but was actively concerned with a science-related hobby outside of school, e.g. ham radio; (c) his scholarship suffered because of part- or full-time employment while in high school; (d) he left high school before graduation. The needs of such students may be served by a pretechnical program.

More of these programs should be provided to give such students the opportunity to develop their full potential and, in so doing, enable more youths to enter technical education programs and help meet the growing need for technicians.

The pretechnical post-high school program should be the responsibility of the technical education institutions and should have as its objective the enabling of students to acquire understanding and skills in one or more subjects.

The following skills at levels equivalent to a good high school program are required in order to enter the technical program: communications (reading, writing, spelling, grammar, punctuation, speaking, listening, and language comprehension), mathematics, physics, chemistry, or biology. The program should be organized for two semesters, with courses being available for those requiring only one semester of work. The pretechnical courses required should be scheduled according to individual student needs, including introductory courses in his technical specialty which will maintain his interest and help him to fit in with other students in the institution.

There are as many kinds of technicians as there are professional scientists; for identification purposes they can be placed within three general classifications: (a) physical science and related engineering technologies (e.g., aeronautical and aerospace, chemical, instrumentation, oceanographic, printing); (b) biological science technologies (e.g., health and related technologies, and agriculture and related technologies); and (c) combined physical and biological technologies, (e.g., agricultural equipment, dairy products processing, sanitation and environmental control, scientific data processing).

Typical prerequisites for curricula in either physical science or biological-based technologies include the following: graduation from high school or equivalent; two years of mathematics, including algebra, geometry and intermediate algebra or trigonometry; one year of physics or one year of chemistry; in some cases a year of biology; competence in communication skills (three to four units of English).

These are all necessary because the student must be able to master a curriculum which meets the three major demands on technical training: (a) it should equip the graduate to take an entry job in which he will be productive; (b) it should enable the graduate to advance to

positions of increasing responsibility, and (c) it should provide a comprehensive foundation which would support further study within the graduate's field of technology.

Course outlines are provided in this guide. In addition, remarks are included on special administrative considerations, such as federal support, advisory committees and services they provide, student selection, faculty, student counseling, guidance and advisory services, and physical facilities and their cost.

Small Engines: Care, Operation, Maintenance and Repair. Two Volumes. American Association for Agricultural Engineering and Vocational Agriculture. Athens, Ga. June 1968.

This is the latest in a series of teaching texts issued by the American Association for Agricultural Engineering and Vocational Agriculture (AAAEVA). Materials were obtained from more than 400 references from industry, trade associations, experiment stations, and colleges. Both volumes are cross-referenced and the editors recommend both for complete subject coverage.

Volume One gives basic engine operating principles and step-by-step procedures for the care, operation and service of 2-cycle and 4-cycle air-cooled gasoline engines and accessories. It is intended for use by those who operate and maintain engines.

Volume Two deals with the basic design and operating principles which are important for those interested in advanced maintenance and repair of 2-cycle and 4-cycle air-cooled gasoline engines. Step-by-step procedures are given along with a complete explanation for each operation.

Color diagrams, as well as photographs of actual parts, are used profusely throughout both volumes. They are all clearly marked and described. Listed below are the content areas in both volumes.

VOLUME ONE

- Small Engine Types
- Fuel Systems
- Air Cleaners
- Carburetors
- Batteries
- Starters
- Spark Plugs
- Crankcase Breathers
- Starting
- Operating
- Cleaning
- Storing
- Lubricating
- Adjusting
- Safety
- Operating troubles

VOLUME TWO

- Starters
- Ignition systems
- Fuel systems
- Governors
- Lubrication systems
- Generators
- Carburetors
- Flywheels
- Engine:
  - valves
  - cylinders
  - piston-and-rod assemblies
  - camshaft assemblies
  - crankshaft assemblies
  - cylinder heads

Food Processing Technology: A Suggested Two-Year Post-High School Curriculum. Robert M. Knoebel and others. U.S. Office of Education. Washington, D.C. 1967.

This guide was prepared by agricultural and technical education specialists in the Occupations Section of the Division of Vocational and Technical Education, U.S. Office of Education, based on materials gathered by the State University of New York Agricultural and Technical College at Morrisville. Included are suggested course outlines for a food processing curriculum with descriptions of texts, procedures, laboratory layouts, library facilities, and faculty and student services. It is hoped that this guide will assist school administrators, advisory committees, supervisors, and teachers who are involved in planning new programs or evaluating current ones.

APRIL ISSUE . . . Next month, Research Visibility will report on studies dealing with "The Preparation of Professional Personnel."

The curriculum in this guide has been designed to meet the following requirements in order to insure functional competence in the broad field of food processing technology:

—The training prepares the graduate to be a productive employee in an entry level job.

—The broad technical training, together with a reasonable amount of experience, enables the graduate to advance to positions of increasing responsibility.

—The foundations provided by the training are broad enough to enable the graduate to do further study within his field. This further study may be reading of journals and new text materials, and formal course work.

The first year of study has the following as its goals: (a) to develop a scientific background necessary for the successful completion of future courses and to allow for a more thorough practical application of technology to a highly scientifically oriented field; (b) to motivate the student by introducing the major field of study; (c) to establish a means of verbal, graphic and written communication, and (d) to develop scientific techniques through the conduct of laboratory exercises.

The second year of study has as its goals the following: (a) to broaden the student's conception and perception of society by including courses in the social sciences, and (b) to provide maximum instruction in specialized courses to obtain the technical competency expected of the student.

CURRICULUM OUTLINE

Summer Working Experience—A Work Period in the Food Industry

	Hours per week			
	Class	Laboratory	Study	Total
First Semester:				
Communication Skills	3	0	6	9
Chemistry I	3	3	6	12
Microbiology	2	3	4	9
Mathematics I	3	0	6	9
Food Processing I	3	0	6	9
Total	14	12	28	54
Second Semester:				
Technical Reporting, Drawing, Sketching, & Diagramming	2	3	4	9
Chemistry II	3	3	6	12
Food Microbiology	2	3	4	9
Mathematics II	3	0	6	9
Food Processing II	3	4	6	13
Food Grades & Standards	0	2	2	4
Total	13	15	28	56

Third Semester:

General & Industrial Economics	3	0	6	9
Quantitative Chemical Procedures	2	4	4	10
Quality Control I	2	3	4	9
Food Packaging	2	3	4	9
Food Processing III	3	4	6	13
Food Industries Seminar	2	0	4	6
Total	14	14	28	56

Fourth Semester:

Industrial Organizations & Institutions	3	0	6	9
Quality Control II	3	4	6	13
Food Plant & Environmental Sanitation	3	0	6	9
Food Plant Equipment	2	3	4	9
Food Processing IV	3	4	6	13
Total	14	11	28	53

TOPIC FOUR: Other Studies

See Bibliography for information on availability of complete studies

Curriculum Handbook for School Administrators. American Association of School Administrators. Washington, D.C. 1967.

In recognition of the need of school administrators for a clear, concise source of information of the myriad of new curriculum developments, the Executive Committee of the American Association of School Administrators enlisted the assistance of professionals and organizations in 15 areas to prepare this administrator's handbook. The authors were asked to identify emerging concepts in curriculum content, and in the organization and application of knowledge, and the emerging methods of instruction. The major areas discussed are art, business education, English language arts, foreign languages, health, home economics, industrial arts, mathematics, music, physical education, safety education, science, social studies, vocational education, and planning and organizing for curriculum change.

Chapter 14 is devoted to a discussion of vocational education by Lowell A. Burkett and Mary P. Allen of the American Vocational Association. They state that a vocational education curriculum is "a series of organized experiences designed by educators to prepare students for employment." Its content is derived from the world of work and organized into the broad fields of trades and industry, health, agriculture, office employment, marketing and distribution, technical work, and home economics.

Burkett and Allen identify several emerging concepts in vocational education which should be recognized and understood by school administrators as they plan instructional programs that will meet the demands of society.

—Vocational education must be made available to people of all ages in all communities.

—Vocational education programs must be related to job opportunities which actually exist and to employment and labor mobility trends which have implications for overall planning in vocational education.

—Advisory councils and committees are now mandatory at the state level and many are being established at the local level. It is now recommended that a committee be established for every vocational education curriculum offered by a school.

—Placement and follow-up of graduates can help a school to validate its curriculum. The school thus remains aware of changes in the labor market and the demands of the world of work and can make curriculum changes accordingly.

—Vocational education should not be structured as an end in itself, but should encourage lifelong learning.

—Students should be exposed to the world of work, both in their immediate environment and outside their own communities, through exploratory programs which provide insights about work that encourage completion of a high school program and making plans for a future job.

—Schools should realistically encourage students who can benefit from it to seek vocational training as an honorable alternate to a baccalaureate program.

—Reliable data about the vocational education program and its graduates is necessary to provide the public with information that will enable it to intelligently support vocational education.

—The ultimate aim of preparing an individual to be self-supporting is shared by vocational education programs with agencies which provide health, welfare and other educational services.

Some emerging concepts in organization and administration of vocational education programs include an increased acceptance of the area vocational school by all the states, particular emphasis on programs for the disadvantaged, the use of private training facilities outside the public school system, and the recognition of a need for special administrative arrangements for metropolitan areas.

There are five specific emerging concepts in instructional techniques: (a) the team approach to teaching; (b) teaching for a cluster of occupations; (c) the cooperation of

The Emerging Labor Force. A five-part paper by Seymour L. Wolfbein with commentary by Herbert E. Striner, has been published by the Council on Trends and Perspectives of the Chamber of Commerce of the United States, Washington, D. C. Content focuses upon (a) patterns of future labor supply and demand, (b) potential problems, (c) a strategy for the private sector, (d) a program for the future, and (e) specific program suggestions. Significant statistics and projections of the paper are also available in color slides (35 mm) and in a script for $10 from the Audio-Visual Department of the Chamber. The publication alone is $2.50.

two or more fields of vocational service in providing occupational training for jobs for which more than one type of vocational training is needed; (d) an increased use of programed instructional materials and automated teaching devices, and (e) the evolvement of new approaches to the entire field of vocational education through experimental and demonstration programs.

The Design and Evaluation of Vocational Technical Education Curricula Through Functional Job Analysis. Final Report. Howard H. McFann. The George Washington University, Washington, D.C. August 1968.

It is felt that this report will be of great interest to psychologists and, because of its technical nature, only brief mention is given here. The research reported in this document is an overall effort to develop a taxonomy for classifying vocational education objectives. The purpose of the taxonomy is to provide a framework for evaluating and comparing existing programs, and eventually establishing criteria for the design and development of a radically different comprehensive curriculum.

TOPIC FIVE: On-Going U.S.O.E. Projects in Curriculum Development

Several projects sponsored by the U.S. Office of Education in the area of instructional materials are expected to yield significant results when completed. They are briefly described here.

Development and Evaluation of an Experimental Curriculum for the New Quincy Massachusetts, Vocational-Technical School. Project No. 5-0009. Principal investigators: Maurice J. Daly, Quincy Public Schools, and Robert M. Gagne, The American Institute for Research.

This project was begun in April 1965, and will end December 1969. The objectives are to demonstrate the increased effectiveness of instruction whose content is derived from an analysis of desired behavior after graduation, and which attempts to apply newly developed educational technology to the design, conduct, and evaluation of vocational education.

The Implementation and Further Development of Experimental Cluster Concept Programs Through Actual Field Testing and Evaluation at the Secondary School Level. Project No. 7-0853. Principal investigator: Donald Maley, University of Maryland.

This project is of 12 months duration. Phase I of the study was reported in the February 1968 issue of *Research Visibility*. In beginning phases of the project, curriculum materials were developed for training vocational teachers for experimental programs in three occupational clusters: construction, metal forming and fabrication, and electromechanical installation and repair. This final phase of the project is dealing with the development of a program of study that will support the cluster concept of vocational education.

Study of Curriculums for Occupational Preparation. Project No. 8-0334. Principal investigators: Carl Schaefer and Bruce W. Tuckman of Rutgers, The State University.

This project was begun in May 1968, and will end May 31, 1970. The objectives of this project are to: (a) establish a communication link between 15 state-supported vocational curriculum laboratories; (b) develop and refine a scheme for reorganizing educational objectives in terms of the behavioral process used to accomplish each objective and the object of the process in each instance; (c) give the finalized process-object model a preliminary test on a small sample of behavior to determine its applicability and breadth, and (d) develop staff capability and a detailed program of planned curriculum undertakings in connection with the overall organic curriculum effort.

Opportunities and Requirements for Initial Employment of School Leavers With Emphasis on Office and Retail Jobs—Phase Two. Project No. 6-1968. Principal investigator: Fred S. Cook, Wayne State University.

This is a three-year study scheduled for completion in July 1969. The objectives are to: (a) determine the essential skills needed for selected entry occupations in distributive and office occupations; (b) determine the instructional units necessary to teach entry occupation skills; (c) develop a Senior Instructional Program to meet the entry job requirements; (d) prepare selected seniors to obtain and hold an entry job in selected distributive and office occupations; (e) place the school leavers in entry occupations selected with the cooperating employers, and (f) determine the school leaver's success on these jobs.

A Planning Study To Determine the Feasibility of Developing a New Business and Office Education Curriculum. Project No. 7-1223. Principal investigator: Frank W. Lanham, The National Center for Vocational and Technical Education, The Ohio State University.

The initial four-month feasibility study on the development of a major curriculum project in the office occupations has been completed. The precise objectives are now being obtained through a consortium approach, drawing upon the talents of personnel from such organizations as the National Business Education Association, Administrative Management Society, Business and Office Education Division of the American Vocational Association, and others. Attention will be directed toward determining the organizational structure for a major effort in curriculum redesign, and procedures for instituting a massive curriculum project.

Establishment of a Course of Study in American Industry as a Transitional Subject Between General and Vocational Education.

This study is being conducted at Stout State University in Menomonie, Wisc., under the direction of Wesley L. Face and Eugene R. F. Flug, and is scheduled for completion in June 1970. The actual curriculum is anticipated in the summer of 1969; the final evaluation is not expected until June 1970.

The Efficacy of Home Economics Courses Designed To Prepare Disadvantaged Pupils for Their Homemaker-Family Member Role and Dual Roles of Homemaker and Wage Earner. Project No. 7-0006.

Part A of this study is under the direction of Phyllis K. Lowe of Purdue University. Part B is being carried out at Cornell University, and Part C at The Ohio State University. The project is scheduled for completion in October 1969. The objectives are to investigate the impact that can be made on poverty in urban areas by (a) a newly designed home economics curriculum which prepares disadvantaged pupils for their roles as homemakers and family members in a changing society, and (b) a newly designed curriculum which prepares disadvantaged pupils for their dual roles of homemaker and wage-earner in occupation utilizing home economics knowledge and skills.

Development of Performance Goals for a New Office and Business Education Learning System. Project No. 8-0414. Principal investigator: Frank W. Lanham, The National Center for Vocational and Technical Education, The Ohio State University.

This project is scheduled for completion in December 1969. The purpose is to define a comprehensive, timely set of behavioral objectives for office and business education in public schools which can be approved by the business and office education profession and which are derived by explicit analysis of the performance requirements of tasks and of social roles in current and emerging occupations.

A Junior High School Industrial Technology Curriculum Project. Project No. 7-0003. Principal investigator: Edward R. Towers, The Ohio State University.

This project is scheduled for completion in June 1969. The first phase of this study (Project No. 5-0009) was reported on in the February 1968 issue of *Research Visibility*. The three major objectives of this project are to: (a) design an effective two-year articulated program of study for industrial arts in the junior high school; (b) develop the related teaching materials, and (c) install and evaluate the effectiveness of the program and materials.

Development of Career Opportunities for Technicians in the Nuclear Medical Field. Project No. 7-0313. Principal investigators: J. Paschal Twyman and James Potchen, Technical Education Research Center, Inc., Waco, Texas.

The overall objectives of this 12-month study are to analyze the employment opportunities in nuclear medical technology, and to develop and pilot test an integrated post-high school technical education program for nuclear medical technicians and nuclear medical research technicians.

A Vocational-Technical Institute Development Program. Project No. 6-2166. Principal investigators: David F. Shontz and Andreas Holmsen of the University of Rhode Island.

This study, scheduled for completion in August 1970, has these objectives: (a) to establish and evaluate a thirteenth and fourteenth year vocational-technical program in commercial fisheries, (b) and to develop and appraise an organized program of individual counseling, placement and follow-up of graduates.

Police-Related Courses

Policemen who want more schooling are about to get a boost from Uncle Sam. A new Office of Academic Assistance is gearing up in the Department of Justice under a provision of the 1968 Omnibus Crime Control and Safe Streets Act. When it opens its doors, it will have $6.5 million in grants and loans for law-enforcement officers and students planning police careers. And in the next fiscal year it expects another $20 million.

Purpose of the aid, to be available for the January 1969 semester, is to bolster the size of local police forces as well as their social and professional stature.

Most police-related courses now are heavily concentrated in junior colleges. The new office, which would like to see these courses spread to four-year colleges, plans to set up model university police education programs.—*Christian Science Monitor*, Oct. 5, 1968.

Development and Validation of Instructional Programs for the Allied Health Occupations. Project No. 8-0627. Principal investigator: Melvin L. Barlow, University of California at Los Angeles.

This study is scheduled for completion in June 1972. The objective is to develop exemplary instructional programs for the continuing education of existing allied health personnel and for the preservice education of new allied health personnel at the community college level.

Development and Evaluation of Educational Programs in Bio-Medical Equipment Technology. Project No. 7-0973. Principal investigators: Roy W. Dugger and Edmund P. Garvey of the Technical Education Research Center, Inc., Waco, Texas.

This is a 27-month study. Phase I was reported on in the October 1968 issue of *Research Visibility*. The overall objectives are to develop, demonstrate, and evaluate a broad spectrum of post-high school educational programs in biomedical equipment technology.

Development of Generalizable Education Programs in Laser and Electro-Optical Technology. Project No. 8-0491. Principal investigator: Roy W. Dugger, Technical Education Research Center, Inc. of Waco, Texas.

This is a 12-month study. It has been estimated that by 1970 we will need 30,000 laser technicians in American industry. The overall objectives are to develop, pilot test and evaluate interdisciplinary post-high school technical education programs in laser and electro-optical technology.

Development and Evaluation of a Concrete Technology Curriculum (Phase I). Project No. 8-0042. Principal investigator: James D. Piper, Portland Cement Association.

The major objective of this three-phase study is to develop and evaluate a two-year, integrated curriculum designed to prepare persons for employment in the cement and concrete industries occupations. Phase I is to be of 18 months duration.

Development and Evaluation of Educational Programs in Electro-Mechanical Technology. Project No. 8-0219. Principal investigators: Maurice W. Roney and Roy W. Dugger of the Technical Education Research Center, Inc., Waco, Texas.

The purpose of this 33-month project is to develop, test, and evaluate a generalizable two-year associate degree type curriculum for electro-mechanical technicians in three pilot schools and to develop a set of integrated instructional and program planning materials.

Reports From Organizations Under Contract to Federal Agencies

CFSTI, the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va., 22152, collects research reports from Government laboratories and industrial firms and private institutions under contract to sponsoring federal agencies. The Clearinghouse collection, dating back to 1946, contains more than 520,000 titles and is increasing at a rate of 50,000 titles per year.

Reports are announced in a semimonthly abstract journal, *U.S. Government Research and Development Report* (USGRDR), under 22 subject fields: Aeronautics; Agriculture; Astronomy and Astrophysics; Atmospheric Sciences; Behavioral and Social Sciences; Biological and Medical Sciences; Chemistry; Earth Sciences and Oceanography; Electronics and Electrical Engineering; Energy Conversion; Materials; Mathematical Sciences; Mechanical, Industrial, Civil and Marine Engineering; Methods and Equipment; Military Sciences; Missile Technology; Navigation, Communications, Detection, and Countermeasures; Nuclear Science and Technology; Ordnance; Physics; Propulsion and Fuels; and Space Technology.

A USGRDR *Index* is published concurrently and indexes each issue of USGRDR by subject, personal author, corporate author, contract number, and accession/report number. (Annual subscription rate for USGRDR is $30.00; for the USGRDR *Index*, $22.00.)

The most recent service of the Clearinghouse is the *Clearinghouse Announcements in Science and Technology* (CAST), designed for quick review of current scientific and technical reports which are broken down into 46 separate subject areas (*see below*). USGRDR contains all titles reviewed by the Clearinghouse, from which the CAST obtains its material by subject matter. (Annual subscription for this semimonthly service is $5.00 for the first category; for each additional two categories, $5.00) Below is a listing of the subject categories used in the CAST reports.

1. Aerodynamics and fluid mechanics
2. Aeronautics
3. Area development planning
4. Astronomy and astrophysics
5. Atmospheric sciences
6. Automation and data processing
7. Behavorial sciences
8. Biological sciences
9. Chemistry and chemical processing
10. Communications
11. Earth sciences
12. Economics
13. Electro-technology
14. Food and agriculture
15. Fuels and lubricants
16. Industrial engineering
17. Information sciences
18. Management planning
19. Marine technology
20. Materials
21. Mathematics and statistics
22. Mechanical engineering
23. Medical sciences
24. Metals and alloys
25. Military sciences
26. Navigation and detection
27. Nuclear Science
28. Oceanography
29. Operations research
30. Optics
31. Ordnance
32. Physics (general)
33. Physics (high energy)
34. Physics (solid state)
35. Plasma research
36. Plastics and elastomers
37. Power source devices
38. Propulsion systems
39. Reactor technology
40. Reprography and recording devices
41. Safety engineering
42. Social sciences and education
43. Space mechanics
44. Space vehicles
45. Testing and analysis
46. Transportation.

Documents reported by the Clearinghouse in any of the above publications are available in microfiche and paper copy. Regardless of the size of the document, the cost remains constant at $3.00 for paper copy, and $0.65 for a microfiche copy. The Clearinghouse requires prepayment on all orders, and recommends the use of document coupons to expedite processing of orders (use of coupons provides a two-to-four day service).

The coupons may be obtained from the Clearinghouse: book of 10 paper copy coupons for $30.00; a book of 50 microfiche coupons for $32.50. Documents are ordered according to an accession number; if the number is not known, the complete title and other identifying information may be used: contract number, sponsoring federal agency, author, or source of information.

The Clearinghouse also has a *Fast Announcement Service* (FAS) which highlights selected new Government R&D reports, utilizing a subject system of 57 categories. Fast Announcements are also sent to trade and technical press for re-announcemnt. (Annual subscription rate: $5.00.)

PLAIN TALK

THERE IS MORE than a little consensus among vocational education scholars that *curriculum* in vocational and technical education constitutes the *major* professional problem. A corollary statement or assumption, and one strongly related to both research and curriculum, indicates the probability that less investigation and research is devoted to curriculum than to other major problem areas of the field. Traditionally, at least, there is strong kinship and mutuality in the nature of the overall research and curriculum problems; both areas of concern suffer from (a) lack of time, resources, and effort to clarify their focus and function, (b) lack of relationship and coordination, and (c) effective dissemination and communication.

Happily in the spirit and language of the Vocational Education Amendments of 1968, an overdue shot-in-the-arm is given to curriculum development. Admittedly, Congress sees several complications related to curriculum development: (a) diversity of program purposes, (b) geographical differences, (c) differences in school levels and programs, and (d) the wide range and scope of occupations. The Congress also makes no bones about the necessity of curriculum development for new and changing occupations, and the improvement, coordination and dissemination of curriculum materials.

Congressional *intent* in the uses of funds, therefore, is very specific and far-reaching: (a) development and dissemination of materials, (b) development of standards for curriculum development, (c) coordination of State efforts in preparation of materials and their availability, (d) survey of materials produced by other agencies, particularly the Department of Defense, (e) evaluation of materials and their uses, and (f) training of personnel in curriculum development.

Balances and Imbalances in the New Vocational Curriculum. Few legislative bills of the past have reflected the American educational dream—the *optimum* development of each person—which is the *spirit* of VEA 1968. To vocational educators, at least, this spirit must be confronted and greatly implemented. The confrontation demands the reexamination of purposes and great sensitivity to *balance* in the overall curriculum of vocational and technical education. A strong case in point is the importance (and legislative provisions) attached to *cooperative vocational education programs, work study programs,* and what may be termed "occupational orientation" (the focus of *exemplary* programs and projects). None of these is a stranger to vocational education. Despite their relatedness, they are not interchangeable; neither do they serve the same function. Little short of tragedy, certainly student exploitation will occur if cooperative vocational education becomes work-study.

Precise educational planning and coordination, the heart of cooperative education, is less critical and demanding in the work-study program with its *general* relatedness to the values of work and employment. *Occupational orientation* as a descriptor for acquaintanceship and familiarity with the world of work should be a general purpose and function of American schools for all Americans. The professional vocational community will need to exercise a great deal of discrimination and insight into the examination and delineation of program purposes, appropriate curriculum, and expected student outcomes and behaviors to achieve the degree of balance over the entire range of vocational and technical education.

From Here and There: Mid-winter literature is rich in information and implications for research and curriculum. Do you know about:

Abstracts of Instructional Materials in Vocational and Technical Education (AIM). AIM announces the availability of documents acquired and processed by the ERIC Clearinghouse on Vocational and Technical Education at The Ohio State University. Included are abstracts of materials typically designed for teacher use or student use in the classroom, and annotations of bibliographies or list of instructional materials. It will be of particular interest to teachers, curriculum specialists, supervisors and administrators involved in the use of instructional materials in the teaching-learning setting, or in curriculum development.

AIM is published quarterly (Fall, Winter, Spring, Summer). The first issue was the Fall 1967 issue. It is available by subscription for $9.00 per year. Send order, indicating quarter and year that subscription is to begin, to: Publica-

tions Clerk, The National Center for Vocational and Technical Education, 1900 Kenny Road, Columbus, Ohio 43212.

Planning and Designing Functional Facilities for Industrial Arts Education. USOE Specialists Marshall L. Schmidt and James L. Taylor have co-authored a 54-page timely publication which generally treats trends and the emerging program, planning, space and facilities needed, the general physical environment, and provides an excellent summary and recommendations. The publication (OE-51015) is available from the Government Printing Office, Washington, D.C. 20402 for 45 cents.

Defense Industry Bulletin. Technical education personnel will be particularly interested in this free monthly bulletin (see *RV* bibliography for availability details). Although it is primarily intended for industry and industrial representatives, it is a rich source of technical and research information related to the Department of Defense. In addition to five or six feature articles of interest to technical manpower, the *Bulletin* has continuing departments, one of which is a bibliography of publications and research reports.

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(For ordering information, see "Document Sources" listed on page 108.)

STUDIES REPORTED
In this issue

TOPIC ONE: Curriculum Development Projects

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"An Experimental Course in Supermarket Merchandising and Management: A One Year Course of Study." Gordon E. Van Hooft. The University of the State of New York and The State Education Department Bureau of Secondary Curriculum Development, Albany. 86 pages. 1967. (Single copy available for 50 cents. Remittance should be sent to Publication Distribution Unit, State Education Department, Albany, N.Y. 12224. Also see future *Research in Education* for ERIC number.)

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TOPIC TWO: Curriculum Workshops

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TOPIC THREE: Laboratories and Materials

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TOPIC FOUR: Other Studies

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"The Design and Evaluation of Vocational Technical Education Curricula Through Functional Job Analysis." Final Report. Howard F. McFann. The George Washington University. Washington, D.C. August 1968. (For ERIC # see future *Research in Education*)

ADDITIONAL STUDIES
Not reported in this issue

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CFSTI—Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. Copies of reports with this symbol may be purchased for $3 each (paper) or 65 cents (microfiche). Send remittance with order directly to the Clearinghouse and specify the accession number (AD or PB plus a 6-digit number) given in the listing.

ERIC—Educational Resources Information Center, EDRS, c/o NCR Co., 4936 Fairmont Ave., Bethesda, Maryland 20014. Copies are priced according to the number of pages. The MF price in the listing is for microfiche; the HC price is for paper copies. Send remittance with order directly to ERIC-EDRS and specify the accession number (ED plus a 6-digit number) given in the listing. *How to Use ERIC*, a recent brochure prepared by the Office of Education, is available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402; the catalog number is FS 5.212.12037; price: 20 cents.

GPO—Government Printing Office. Send orders directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, with remittance for specified amount.

MA—Manpower Administration. Single copies free upon request to U.S. Department of Labor, Manpower Administration, Associate Manpower Administrator, Washington, D. C. 20210

OTHER SOURCES—Where indicated the publication may be obtained directly from the publisher at the listed price.

RESEARCH VISIBILITY

Synthesis / Application / Dissemination

Preparation of Professional Personnel for Vocational Education

VOCATIONAL EDUCATION is professional planning and achievement . . . The reports in this issue of *Research Visibility* are partial evidence from a great bulk of literature which describes numerous activities in research and development as they are related to the preparation of professional personnel in vocational and technical education. The overall bulk of the evidence goes a long way toward dispelling the commentary which has existed over the years (and is still present) that the vocational education "establishment" is professionally out of touch to an extent that it is obsolete. Admittedly, public vocational and technical education is everyone's business. The professional and technical expertise of its administration, instruction, preparation, and conduct of other professional areas of activity, however, have definite limitations for the nonprofessional and his interest and involvement.

The hand and influence of sophisticated research design and activity make up a small portion of this report. Notwithstanding this deficiency, the high involvement and communication of researchers, teacher-educators and other professionals in many seminars, institutes and conferences concerned with the preparation of professional personnel (and the research about it) are a powerful prelude to a greatly improved and expanded program of vocational and technical education for the citizens of the country.

The innovative in teacher education programs is sparked by Klaurens: Hensel reports two efforts in the teacher supply-demand situation. Some attention to the preparation of an educational specialist in facilities is reported by Peterman. Reese has assembled an extensive report which treats the topics of teacher certification and the construction of a paradigm for research for the education of teachers in trade and industrial education.

The reporting of other activity is as stimulating and encouraging as it is diverse: Haines and the project plan of instruction in distributive education; Hull and Rogers and agricultural education which are (a) related to occupational experience (distribution), and (b) teacher education in connection with the young farmer program; the professional internship as seen by a working conference and Stern; the identification of alternative approaches to the improvement of teacher education which grew out of a seminar of 300 participants including Reporters Vivian and Hoffman; Bell's account of critical issues in vocational and technical teacher education, especially those which are related to the role and future of small colleges and universities; Aaron Miller's report of the special consideration and emphasis related to leadership requirements of newly appointed administrators of technical education programs; the two-point purposes of design and analysis of a program of the

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EDITOR'S NOTE

Research Visibility is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The *Research Visibility* report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-070633, project 7-0633; "Synthesis and Application of Research Findings in Vocational Education").

George L. Brandon, professor in residence (Pennsylvania State University) is editor of *Research Visibility*. He is assisted in the preparation of these reports by Research Assistant Anne Ware.

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American Association of Colleges for Teacher Education, as described by LaGrone, which suggest a way of reconstituting the objectives of teacher education and show the role of media in increasing its effectiveness; and Barlow and Reinhart's description of their work as they analyzed trade and technical leadership activities, the leadership's perception of major issues and influential factors and the ways in which professional advancement is attained.

There is also a review of Rice's report of personnel policies, practices and requirements of state divisions of vocational education and their staffing requirements through 1970.

The University of Wisconsin's Harland E. Samson decries the small amount of study and research which has been devoted to the improvement and development of the science of teacher education. In the chapter "Staffing" of *Review of Educational Research*, October 1968, he asserts that the current research is "descriptive" rather than being able to account for various concerns about staffing. There is a brief resume of his analysis in this issue of *RV*.

The common denominator of the effectiveness of vocational and technical education rests with the quality of teaching in direct instruction. Consequently, there is no topic of greater importance to vocational education and to its recipients, than that of the education of its teachers. This fact is as true of vocational education for the disadvantaged as it is of vocational education for the gifted. No doubt, this is one factor among many which makes it professional—*critically professional*—in the lives of many millions of Americans today.

TOPIC ONE: Seminars and Workshops

See Bibliography for information on availability of complete studies

Guidelines for Implementing the Project Plan of Instruction in Distributive Education Through Teacher Education. Project Report No. 6. Peter G. Haines. Michigan State University, East Lansing. Department of Secondary Education and Curriculum, College of Education. April 1968.

This task force on the implications for teacher education in the use of the project methods in distributive education is the result of the National Seminar in Distributive Education which was held in May 1967. This document is designed for use in seminars, courses, conferences, workshops, and in-service meetings, and it may be reproduced in part or in whole without permission from the author.

Five major topics were each assigned to two separate task forces; the task force reports are presented in the form of a brief summary, followed by a discussion of key points, implications for development, and references.

Task Force No. One commented on five key points which a successful teacher education program should consider: "(a) the project laboratory teacher needs preservice and inservice professional education and experiences in a broad spectrum; (b) specific educational preparation within the framework of the marketing discipline is critical requirement for the project laboratory teacher; (c) general education is a component of the competencies and experiences needed by project training teachers; (d) practical distributive occupational experience is a necessity for the project laboratory teacher, and (e) personal qualities necessary for successful teaching in any educational endeavor are especially important in the project laboratory teacher of distributive education."

Task Force No. Two identified 13 major competencies which are needed by successful project training teachers. They are:

1. Ability to design and produce effective curricula for project training programs.
2. Skill in using methods and techniques of instruction particularly applicable in project training situaions.
3. Necessary communication skills for effective involvement with students, administrators, faculty and the business community.
4. An understanding of the terminology which is necessary for carrying out the objectives of the project plan.
5. Ability to construct follow-up studies to determine success of project instruction.
6. Ability to counsel students regarding the ease with which they may enter into the cooperative plan.
7. An understanding of ways of coordinating classroom learnings with out-of-class learning activities designed to accomplish stated objectives.
8. Ability to work cooperatively with the principal in designing the organizational pattern best suited to the needs of the local high school.
9. Ability to design and equip a laboratory for the preparation of non-cooperative students.
10. Broader and deeper occupational understandings and experiences.
11. An understanding of the philosophical foundation underlying the project plan.
12. Ability to maintain good public relations with other teachers, administration, employer and community.
13. Ability to plan, direct and evaluate various participating experiences which focus on activities of distributive occupations and decision-making situations in distribution.

The implication derived by Task Force No. Two is that, "Every facet of the distributive teacher education program should be re-examined to be certain that the curriculum reflects the changing concepts in distributive education and that adequate staff and facilities are provided."

The other four topics studied by task forces were inservice teacher education, experiences provided for the teacher trainees, ancillary services, research and materials development, and resources that are needed by the teacher education institution.

(Editor's note: See Bibliography section for another task force report from this seminar, Guidelines for Implementing the Project Plan for Instruction in Distributive Education in the Schools.)

Developing Occupational Experience Programs in Agricultural Distribution: Report of a Teacher Education Institute on Agricultural Occupations. William L. Hull and others. The Research Foundation, Oklahoma State University, Stillwater. October 1967.

"The Vocational Education Act of 1963 makes it possible for vocational training in agriculture to be provided for all types of agricultural occupations, both on and off the farm. Supervised training can now be provided in off-farm agricultural occupations as well as in supervised farming programs. One of the greatest difficulties in developing such programs is that the teachers are not qualified for them. Teachers feel inadequate and hesitate to try new types of training programs."

This project was conceived to encourage the adoption of off-farm agricultural occupations program objectives. Two six-week workshops were proposed for vocational agriculture teachers to be instructed by distributive education teacher-coordinators. The objectives of this institute were to: (a) upgrade teachers of vocational agriculture in the distributive phases of vocational education, (b) acquaint teachers of vocational agriculture with methods of conducting supervised training in agricultural business, (c) help rural area high schools to have vocational teachers qualified to conduct broader vocational programs in distributive education, and (d) adapt existing teaching materials in distributive education to meet the needs of training programs in off-farm agricultural occupations.

The participants included 60 vocational agriculture teachers from 17 states. This publication contains the reports of the workshops, including lesson plans, references, ideas, etc., that would be useful in the classroom. Despite the various difficulties, the participants were able to later integrate agricultural distribution units into their regular course instruction.

Two major recommendations were made, based on observations made at the workshops, to further encourage these program objectives. They were as follows:

1. Guidelines should be developed to identify teacher characteristics or situational variables in school systems which enhance the adoption of educational innovations. This development would enable teacher education institute participants to be selected from school systems which are most likely to implement the outcomes of the institute.

2. Instructional materials which simulate business sales and service employee experiences should be developed for classroom use in small rural high schools located in communities with limited potential training stations. Such materials would help prepare students for post-high school occupations in more urban environments.

Professional Internship in Vocational-Technical Education. Summary of a Working Conference. Jacob Stern and others. Michigan State University, East Lansing. Department of Secondary Education and Curriculum, Research and Development Program. 1967.

A working conference of persons experienced in operation of internship programs was called in East Lansing in November, 1966 to identify factors of successful internship teacher preparation programs. This document summarizes the results of the conference.

The Professional Internship Project was designed to utilize the internship approach to prepare teachers in vocational-technical education. Stern described the purpose of the project as devising "an alternative route to becoming a professional teacher appropriate to persons who possess specialized competence needed in vocational-technical education at secondary and post-secondary levels."

The project specifies a program of professional preparation which utilizes the existing technical competence of the individual, leading to a baccalaureate degree and full professional status in education. This internship approach offers economic benefits to the university; for example, since these individuals generally possess the technical competencies, the cost of training facilities is avoided.

In successfully recruiting and selecting candidates, Stern considered the following factors:

1. Educational background: (a) level of sophistication; (b) level of achievement; (c) kinds of education experiences, and (d) appropriateness to the area to be taught.

2. Occupational background: (a) appropriateness to the area to be taught; (b) scope with respect to the breadth and depth required; (c) level of sophistication and involvement required; (d) recency of experience; (e) length of experience; (f) achievements and success attained, and (g) evidence of individual adaptability to occupational setting.

It was noted that candidates may have shortcomings that will need special attention. In this connection, Stern stated that the baccalaureate degree requirements should be sufficiently flexible to accommodate the candidates desired for the program, taking into consideration their qualifications at the time of entry into the program.

This flexibility leads to sufficiently diverse curriculum areas to require an effective system of candidate advisement. It was suggested that each vocational education curriculum area in the College of Education appoint a regular staff member to act as vocational intern program adviser for those candidates majoring or specializing in his area.

Intern teacher candidates participate in a legally responsible, contractual, semi-autonomous, teaching assignment which will last for a portion of the teaching day. School systems forming the "clinical site" should provide the opportunity for the intern teachers to teach classes in which their technical competence is appropriate; the school facilities should be easily accessible, and practicing professionals in the schools should be available to assist the interns. Ideally, the intern with responsibility for class meetings in the morning would then be free for seminars, classes and related professional study for the rest of the day.

According to Stern, "The progress of the intern in the curriculum is best evidenced by the decisions he makes relative to his teaching and the extent that the decisions reflect the assimilation of the theory. . . . It is expected that a greater breadth and depth of understanding will be established during the actual internship. It is possible that an internship for graduate students from the discipline areas concerned might be established as a means of further-

ing the depth of involvement in such discipline areas for the intern teachers."

Stern presented the following six items to be considered when evaluating this program:

1. The kinds of persons attracted to the program with respect to their background and personal characteristics.
2. The staying power exerted by the program in terms of the numbers starting, the numbers finishing and the differences which can be noted regarding the two groups.
3. What happens to the graduates of the program on a short- and long-term basis.
4. The general effectiveness of graduates of the program when compared to beginning and experienced teachers prepared by traditional programs.
5. The acceptability of the product to the employing institutions.
6. A system of feedback from all relevent groups affected by the program which will serve to assist in continually refining the programming.

Developing Innovative Vocational Technical Teacher Education Programs. Final Report of an Upper Midwest Vocational Teacher Education Conference, May 13-15, 1968, Minneapolis. Mary Klaurens. The Minnesota Research Coordination Unit in Occupational Education, University of Minnesota, Minneapolis. 1968.

"The development of effective teacher education programs is crucial to the achievement of the goals envisioned by government, professional educators and the general public." The Upper Midwest Regional Educational Laboratory and the Minnesota Research Coordination Unit for Research and Development in Occupational Education advocate this fact and cooperated in sponsoring this conference to encourage planning and development of improved teacher education programs in the Upper Midwest Region, and to explore the feasibility of further cooperative activities in the Region.

Participants in the conference included vocational teacher educators, research and development personnel, state department vocational staff members, and vocational school directors. Presentations were made by the following leaders in the field of teacher education:

"Vocational Education in the Years Ahead and the Preparation of Teachers," David Allen, University of California, Los Angeles, Calif.

"The Pilot School Program and Implications for Vocational Teacher Education: The Future is Obsolete," L. V. Rasmussen, Duluth Public Schools', Duluth, Minn.

"The Preparation of Educational Manpower—A Performance Curriculum," Raymond Johnson, Stanford University, Palo Alto, Calif.

"Teacher Education for the American Industry Project," by Lorry K. Sedgwick, Stout State University, Menomonie, Wisc.

"The Relevance-Quest Curriculum," Robert R. Randleman, University of Minnesota, Minneapolis, Minn.

"Cooperative Occupational Pre-teaching Experience Program," by Albert J. Pautler, Rutgers—The State University, New Brunswick, N. J.

"Using the Clinical School Concept as the Core of Teacher Preparation and Development of Professional Personnel," by Peter G. Haines, Michigan State University, East Lansing, Mich.

"Educational Professions Development Act," by Robert Poppendick, Bureau of Educational Personnel Development, U.S. Office of Education, Washington, D. C.

An evaluation of the conference by Merle E. Strong, director, Program Services Branch, Division of Vocational & Technical Education, U.S. Office of Education, Washington, D. C., is included. The participants had assessed the conference themselves, and they agreed that the objective of stimulating them to assess their own programs and give consideration to possible improvement was achieved.

In their assessments, the participants indicated 50 specific ideas which they believed to be important, nine of which were given by two or more people:

1. Directed occupational experience.
2. Flexible, individually oriented, teacher education programs and flexible certification.
3. Clinical school, internship programs.
4. Preparation of teachers for disadvantaged youth.
5. Local school, state department, institution cooperation.
6. Early and continued exposure of teacher candidates to learning situations.
7. Personal development of individual teacher candidates.
8. Stipends to encourage personnel development.
9. Individual study programs and learner centered instruction.

Four recommendations resulted from this conference:

1. Future regional conferences should be considered as a way of getting state department, local schools, research units, and teacher education institutions together for cooperation on projects of common concern.
2. New developments in education in general, in teaching and learning ideas, and in federal legislation to facilitate program development should be communicated to those responsible for vocational teacher preparation.
3. Conferences which depend on representation from several states and a number of agencies within the states should be scheduled at times when adequate numbers may attend. A survey of participation interest would indicate feasibility of planning a conference for a particular time.
4. Personnel from the U.S. Office of Education should be invited to participate in the conferences because of their insight into the development of programs across the country, and their knowledge of issues and trends."

Vocational-Technical Teacher Education: National Seminar Proceedings Held Sept. 24-29, 1967. Neal E. Vivian and Kenneth E. Hoffman, The Center for Vocational and Technical Education, The Ohio State University, Columbus. February 1968. 291 pages.

There were 303 participants in this seminar in Chicago, the purpose of which was to "identify alternative approaches for improving programs in the preparation and upgrading of vocational teachers. This document contains

all the major speeches that were delivered by national leaders and recognized experts in education and other fields, and the reactions to them by the vocational-technical teacher educator audience.

All areas and all levels of vocational-technical education were considered, with experts in vocational education, teacher education and the behavioral sciences among the participants. Each major topic was treated by the presentation of a paper by a recognized leader and the reactions to it by the vocational educators and other specialists. The major topics were the projected demand for vocational-technical teachers, emerging approaches to professional education of teachers, innovative approaches in providing occupational experiences for teachers, recent developments in providing major field content, and the contributions of the behavioral sciences to vocational teacher education.

The participants also gathered in small groups to further discuss the topics and their implications by educational level and vocational service.

Robert E. Taylor, director of The Center for Vocational and Technical Education, welcomed the participants with a statement of the purposes and objectives of the seminar. He presented three goals for the participants: (a) analyze the results of recent research, experimental programs and new developments in education and behavioral sciences; (b) investigate their implications for vocational-technical teacher education, and (c) explore the most viable, innovative and promising approaches in the preparation of vocational-technical teachers.

Grant Venn, associate commissioner, Bureau of Adult, Vocational and Library Programs, U.S. Office of Education, presented a telelecture from Washington, D. C. He discussed in detail seven major factors which he feels demand immediate attention. They are: (a) growth of our society; (b) the wide range of individuals now being served by vocational education; (c) the updating of present staff now working and teaching in schools; (d) the new developments in teaching technology and methods; (e) the new occupations that demand skill training; (f) the need for giving an occupational orientation to all students, and (g) teaching the disadvantaged.

Melvin L. Barlow, Advisory Council on Vocational Education, discussed the vital importance of teacher education to the expansion of vocational education. Harold F. Clark, chairman, Department of Economics, Trinity University, San Antonio, Texas, discussed the economics of learning to work, emphasizing the importance of programmed learning. Alice Widener, publisher of *U.S.A. Magazine,* discussed the role and status of vocational-technical education, pointing out the necessity for raising the image of non-bacculaureate-trained employees.

A major topic paper was presented by Laurence D. Haskew, professor of educational administration, University of Texas, "Emerging Approaches in the Professional Education of Vocational-Technical Teachers." Discussion of the topic by service groups followed.

A similar presentation-discussion format was followed as attention was given to the following major topics:

"Contributions of the Behavioral Sciences to Teacher Education."

"Recent Developments in Providing Major Field Content Education."

"An Approach to Providing Vocational Teachers With Experience in the Occupations They Teach."

Special interest group sessions were then held for the participants to discuss the relevance to teachers in high school, post-high school, adult, special needs, and leadership development environments.

Institute on Critical Issues in Vocational and Technical Teacher Education in Small Colleges and Universities. A. P. Bell. North Carolina State University, Raleigh. Center for Occupational Education. 1967.

A statement by John K. Coster, director of the Center for Occupational Education, North Carolina State University at Raleigh, indicates the nature and importance of the institute, "The small colleges and universities have a vital and significant role in the preparation of teachers in the decades ahead. They may not command the physical and material resources of the larger universities, but for many teacher education is their main business. They may be in a more favorable position to experiment and innovate. Indeed, lack of financial resources may force them to examine more closely existing patterns and to devise ways by which existing resources may be reallocated."

The institute had four major objectives:

1. To determine changes in teacher education programs that should be made to take advantage of technological changes and to meet occupational requirements.

2. To generate a meaningful dialogue between national and/or regional leaders in vocational-technical education and teacher educators on current issues and policies affecting vocational education.

3. To determine how resources can be utilized most effectively in teacher education programs, and to encourage the development of an association of small colleges and universities to do this.

4. To encourage the discussion of common problems related to vocational education among institutions of comparable size and resources, and provide the opportunity to consider these problems and work toward their resolution.

Eleven topics were presented by special consultants and were then followed by seminar discussions and seminar reports. The participants included teacher educators and administrators in agricultural education, business education, home economics education, and trades and industrial education in small colleges and universities.

The participants reached 35 tentative conclusions, selected ones of which are:

1. The small colleges should recognize that they are an important source of personnel for occupational education, perhaps the most important source.

2. The forces engaged in occupational education in each small college should be marshalled to determine the mission of the institution in that field, to study the current program, and to suggest needed changes.

3. The current policy for occupational education in each institution should be codified, made available to those affected by it, and reviewed and supplemented by those responsible for it.

4. Small colleges should prize their autonomy, recognize the responsibility for independent action which accompanies it, and avoid becoming unduly dependent upon programs and authority imposed from outside upon them.

5. All of the useful resources of an institution should be employed in strengthening occupational education including the contributions of sociology, economics, political science, and psychology.

6. Resources outside the academic community should be used to vitalize college programs and improve a college's articulation with its environment. Resources available to occupational educators include those of business, industry and employment.

7. Consulting (advisory) committees of lay citizens, authorized by the trustees or the central administration and set up under carefully designed policies, may well be used in planning and revising institutional policies and programs for occupational education.

8. Individual consultants from many sources may be useful in redesigning institutional policies and programs in occupational education.

9. Contacts should be maintained with state, regional and national agencies involved in occupational education to secure from them the information needed in planning institutional programs and the funds that may be used appropriately in developing programs.

The remaining conclusions deal with such varied areas as funding programs, relationships with larger institutions, research and development activities, cost-benefit studies, curriculum planning, and evaluation.

TOPIC TWO: Leadership Training

See Bibliography for information on availability of complete studies

National Program Development Institutes in Technical Education. Final Report. Aaron J. Miller et. al. The Ohio State University, Columbus. The Center for Vocational and Technical Education. February 1968.

The purpose of this project was to improve the understanding of technical education and how the leadership role relates to program planning, implementation, evaluation, and leadership training activities at state and local levels through inservice training programs. The project was specifically directed toward newly appointed administrators of technician training programs, those with administrative responsibility for vocational areas relating to technical education, and experienced state supervisory staff that is responsible for administration of technical education programs or for training technical teachers.

The specific objectives of the project were to: (a) provide a vehicle for the development of present and prospective leaders; (b) provide leadership personnel at the state level with an increased understanding of their administrative roles, and (c) provide an inservice training program to serve as a model for similar programs at state and local levels.

The National Program Development Institutes in Technical Education were conducted in the summer of 1967; they were a consortium of The University of California at Los Angeles, The University of Connecticut, Mississippi State University, Utah State University, and The Center for Vocational and Technical Education, The Ohio State University. The Center for Vocational and Technical Education consolidated the coordination, funding, staff preparation, consultants, instructional materials, participants, evaluation, and reporting aspects of the institutes.

The General Leadership Development Institutes were conducted at Mississippi State University July 10-21, 1967, and at Utah State University, July 17-28, 1967.

The following major topics were included in the program:

—The Leadership Role and Change
—The Rationale and Need for Technical Education
—Description of the Technical Education Student
—Administrative Structure of Technical Education
—Program Patterns and Curriculum Development
—Facilities and Equipment for Technical Education
—Staffing Technical Education Programs
—Financing Technical Education
—Supervision and Inservice Teacher Education
—Establishing Research and Development Needs.

The State Staff Development Institutes were held at the University of California, Los Angeles, July 17-28, 1967, and at the University of Connecticut, July 24-August 4, 1967. Topics discussed at this program are:

—Leadership—The Role and Responsibility
—Current Practices and Trends in Technical Education
—Technician Need Surveys
—State and Local Resources for Program Support
—Coordinating Technician Training with other Vocational Areas
—Publicizing New Technical Programs
—Intermediate and Long-Range Program Planning
—Staffing for Supervisory Positions
—Evaluating Technical Education Programs, Staff and Facilities
—Reporting Systems and Data Handling
—Research Responsibility.

Information gathered from participant application forms and six specifically prepared instruments was used by The Center for Vocational and Technical Education to evaluate the institutes. The Project Evaluation Committee compiled and distributed materials to the participants for their use in conducting future state and locally sponsored leadership

development institutes. The following paragraphs summarize the findings of the Project Evaluation Committee:

Participant's gain in knowledge. The average participant in the State Staff Institutes had a gain score of 11.42 on a 25 item self-appraisal instrument administered as a pre-test and post-test, and an average percentage gain of 15.22 percent.

The average participant in the General Institutes had a gain score of 46.45 on a 50 item self-appraisal instrument administered as a pre-test and post-test and an average percentage gain of 33.81 percent.

Participant's present and planned activities. The average institute participant (both General and State Staff Institutes) had an average absolute change score on a 5-point scale for each of 25 items of 1.10. Any change from present to planned program activities was assumed to be positive. The average participant's percentage of gain, by institute, from their present to planned activities score ranged from a low of 34.98 to a high of 42.23 percent.

Participant's evaluation of institute presentations. The average participant's evaluation on six aspects of institute presentations was 23.31 (6 = poor and 30 = excellent).

It was concluded that the consortium approach was successful and that most of the participants, who represented a wide geographical and service area mix, experienced a commendable gain in knowledge. There was evidence that some participants anticipated implementing positive program changes as a direct result of having attended an institute.

Miller notes that the experiences of this training project indicate certain improvements, such as (a) the determination of how to identify and attract greater numbers of qualified applicants; (b) a refinement of the method of evaluating institute presentations, and (c) scheduling future institutes to avoid conflict with other professional activities.

The following recommendations were offered regarding the nature and need for future training projects in technical education:

- National Program Development Institutes should be continued in 1968 based on the success of the 1967 institutes and the expanded need for leaders in technical education.
- The consortium approach to planning and conducting national institutes for program development should be continued.
- Leadership and program development training in technical education, supported by federal funds and national advisory services, should be continued.
- The geographical location of future institutes should provide optimum transportation accessibility.
- Participants should be reimbursed for travel and subsistence.
- Attempts should be made to employ outstanding consultants for longer periods of time to provide for better coordination and to insure greater in-depth treatment of institute topics.
- The institute program should be planned and organized around fewer topics so that the most critical needs of participants can be explored in depth.
- Overhead money should be provided to the sponsoring institutions to encourage greater participation by leading centers of learning currently hampered by the present regulations.

A Training Institute for Administrative Personnel and Teacher Educators Responsible for Young Farmer Education. Final Report. John H. Rogers. Virginia Polytechnic Institute, Blacksburg, Va. June 1968.

A National Seminar on Young Farmer Education was held at Virginia Polytechnic Institute from Aug. 7-11, 1967. There were 95 participants and contributors, representing 38 states and the District of Columbia. The purpose of the seminar was to "assess the importance of young farmer education and to formulate guidelines for expanding existing programs and developing new programs as warranted."

VPI staff personnel in agricultural education formed a committee which developed a seminar program and suggested qualified participants for program assignments. Outstanding leaders in agricultural education were also queried as to their suggestions for participants who would contribute to the seminar.

The seminar participants felt that the program was successful, that the objectives of the project were largely accomplished. Methods for strengthening young farmer education received a great deal of attention and emphasis was placed on the importance of the cognitive, pyschomotor and affective domains in formulating objectives.

Concerning evaluation, it was suggested that more attention be given accomplishments of young farmer organizations and personal and group achievement. The general feeling was that evaluative efforts have not been satisfactory and that criteria have lacked uniformity and interpretation. The need is felt for realistic criteria which are based upon educational outcomes.

Examples of the ideas advanced for strengthening preservice education of teachers of agriculture were:

—A philosophy and attitude must be developed with students concerning the importance of young farmer education and the desire to become an efficient teacher of such a group.

—Undergraduate students must have an opportunity to observe successful young farmer instruction and programs.

—Prospective instructors need to know administrative policies and procedures and be able to use advisory committees effectively in conducting programs of young farmer education.

Suggestions for inservice activities for program growth in young farmer education included: (a) the initiation and conduct of pilot programs; (b) providing credit courses and noncredit workshops for teachers engaged in young farmer education, and (c) preparation of effective professional and technical instructional materials.

The Seminar was conducted on a committee format; the various committees reported out some interesting items:

—Some auto-tutorial and other aids which should receive attention as a means of making instruction more effective include video tape, closed circuit TV, programmed material, computerized instruction, telephone teaching, and simulated experiences.

—Areas of instruction in which materials designed for self-instruction might be effective are agricultural mechanics, farm credit, wills and insurance, and some facets of farm management.

—Long-range plans should be established in the states for the number of young farmer programs needed and for continued and successful recruitment of staff to make such plans possible.

Nine pertinent conclusions were reached by the participants, based on the presentations, deliberations and committee work of the seminar:

1. The need for a program of continuing education for young farmers is greater than ever today.

2. Recruitment of young men leaving high school and/or entering agricultural occupations is essential to program growth and enhances the economic and social development of those being recruited.

3. A functioning organizational structure greatly enhances the value of educational programs for young farmers.

4. One of the greatest deterrents to program development in young farmer education is the shortage of well-prepared teaching personnel.

5. There is a need for more cooperation among states on the preparation of educational materials to minimize duplication of effort.

6. Program effectiveness can be greatly improved through cooperation with other agricultural and community agencies interested in young farmer education.

7. Additional research is needed to gain knowledge about critical factors involved in young farmer education.

8. Well-designed pilot programs are badly needed to test new "systems" approaches and new technological devices employed in young farmer education.

9. Attention should be given to developing more realistic approaches to evaluating the effectiveness of young farmer educational programs.

TOPIC THREE: Teacher Education

See Bibliography for information on availability of complete studies

Trade and Industrial Teacher Education and Certification: Report of a National Invitational Research Development Seminar. Robert M. Reese. The Ohio State University, Columbus, Ohio, The Center for Vocational and Technical Education, and North Carolina State University, Raleigh, The Center for Occupational Education. November 1968.

This Seminar on Trade and Industrial Teacher Education and Certification was held at The Ohio State University, Oct. 9-11, 1967, and was sponsored jointly by The Center for Vocational and Technical Education; The Center for Occupational Education, North Carolina State Unversity; and the American Vocational Association Trade and Industrial Research Committee.

Reese served as chairman. The seminar planning committee consisted of Carl Schaefer, Rutgers—The State University; Durwin Hanson, North Carolina State University; Ralph Wenrich, University of Michigan; Calvin J. Cotrell, The Ohio State University, and Charles Rogers, North Carolina State University. The other participants in this invitational seminar were Dave Allen, University of California at Los Angeles; George L. Brandon, Pennsylvania State University; Justice Cheeney, State University College, Oswego, N. Y.; Harry Davis, Trade and Industrial Education, Ohio; Bernard Fagan, University of Kentucky; Trevor Howe, Iowa State University; John Ingram, Department of Education, Alabama; Jerome Moss, University of Minnesota; Robert Tomlinson, University of Illinois, and Frank Wimer, State Board for Vocational Education, Washington.

The intent of the participants was to "review relevant research completed, to identify and list critical research problems, and to prepare mini-proposals for high priority studies." Brandon provided a review of the research in trade and industrial teacher education since 1963, noting that much of it was conducted by degree candidates and that despite increases in federal spending, "little improved sophistication was found in research directed specifically toward trade and industrial teacher education . . . . In only a few cases were attempts made to link a teacher's development and his eventual teaching performance."

Fagan presented information on the basic certification requirements for vocational day-trade teachers in the U.S. Of the 46 states responding to his request for information, each had a program of teacher education for trade and industrial teachers. However, the type of program varied from those states providing minimum teacher education without college credit to those offering multiple programs. With regard to preparatory training of teachers, Fagan found that 36 of the states were hiring occupationally competent persons who had no professional teacher education. In addition, the period of time that the initial teaching certificate was valid varied from state to state, as did renewal procedures.

The participants then discussed and identified problems in trade and industrial teacher education and certification that need research. Out of 51 problems identified, the seminar selected 4 on which to concentrate during the seminar.

Mini-proposals were developed for these research areas and are presented in the appendix to this document. The four areas are:

—A model for the measurement of occupational competency.

—The relationship of occupational competency to student achievement.

—What might be the most desirable preservice experience for new teachers.

—What professional competencies are needed for successful teaching.

The major conclusions of this seminar were that (a) there is a large number of research problems in trade and industrial teacher education and certification; (b) there is a need to develop a model for research on these problems; (c) researchers should be involved in future meetings who are ready to go to work on particular research problems; (d) researchers from the other service areas can be helpful to research planning in trade and industrial education, and (e) teacher competency examinations need further development and improvement, or a suitable substitute must be developed.

Professional Teacher Education: A Programmed Design Developed by the AACTE Teacher Education and Media Project. Herbert F. LaGrone. The American Association of Colleges for Teacher Education. Washington, D.C. July 1968.

The two major purposes of this project were to (a) suggest a way of reconstituting the objectives and programs of teacher education, and (b) show how media can be used to heighten the effectiveness of the programs.

The current literature and its implications for teacher education are discussed in terms of behavior and behavior change, educational objectives, the nature of subject matter, teaching media, and teaching processes.

Five areas were identified in which to organize material related to learning. Discussed in detail in terms of developing a curriculum to be utilized in the preparation of teachers, they are: (a) Analytical Study of Teaching; (b) Structures and Uses of Knowledge; (c) Concepts of Human Development and Learning; (d) Designs for Teaching-Learning, and (e) Demonstration and Evaluation of Teaching Competencies.

Each area is discussed in detail. For example, the first area—Analytical Study of Teaching—is introduced by the following statement: "The analytical approach through concrete material is designed to increase the ability of the prospective teacher to identify and relate the variables involved in teaching. The systematic study of the teaching process and the environment for teaching provides a substantive basis for concept formation."

This area is subdivided into sections as "A Concept of Teaching," "Paradigms, Models, or Schema for Teaching," "Concepts from Research in Teaching," and "Improving Teachers' Classroom Behavior." Each section is prefaced by sources in the literature which treat the ideas in even more detail.

A few of the uses noted for media in professional teacher education are concerned with extending human capacities, providing new content, interrelating existing content, and increasing learning potential.

This outline is presently being submitted to the field by AACTE for a critical review. The author notes that the suggested curriculum would entail certain problems: most current instructional materials would not be adequate, teacher educators would have to be reoriented, and the use of media would require increased demands for facilities and equipment. In conclusion, he asks two basic questions: Is this the time to seek a change? Does the proposed content outline offer, or could it be adapted, to give adequate direction?

The Demand for Teachers in Vocational and Technical Education. State Director Survey. James W. Hensel. The Ohio State University, Columbus. The Center for Vocational and Technical Education. January 1967.

This document contains the results of the first phase of a three-phased study of the teacher supply problem in vocational and technical education. State directors provided help in reporting the current situation and identifying the area which will need the greatest number of teachers in the future. The specific objectives of this phase were: "(a) to establish data concerning the current teacher situation in vocational education at the high school and post-high school level; (b) to estimate the demand for teachers in vocational and technical education for the next three years; and (c) to identify the areas in vocational education which will have the greatest need for new instructors in the future."

This study documents the magnitude of the need for teachers in vocational and technical education and predicts teacher need for 1968, 1969, 1970.

The study findings were reported by vocational service area and are briefly described below.

Agriculture. State directors estimated that the number of high school teachers of agricultural education would expand from 9,800 in 1965 to 10,320 in 1968, an increase of 5.3 percent. The number of post-high school agricultural education teachers was projected to expand from 351 in 1965 to 748 in 1968, an increase of 113 percent. The areas of Agricultural Mechanization, Horticulture and Off-Farm Agricultural Occupations were expected to have the greatest need for additional instructors.

Business and Office Education. The number of high school teachers of business and office education were projected to expand from 25,160 in 1965 to 32,196 in 1968, an increase of 28 percent. The number of post-high school teachers was expected to increase from 2,049 in 1965 to 2,807 in 1968, an increase of 37.0 percent. State directors also projected that the areas of Office-Clerical Practice, Data Processing and Stenographic-Secretarial would have the greatest need for additional teachers.

Distributive Education. State directors projected that the number of high school distributive education teachers would expand from 2,818 in 1965 to 4,205 in 1968, an increase of 49.2 percent. The number of post-high school teachers was projected to expand from 321 in 1965 to 557 in 1968, an increase of 73.5 percent. The areas of distributive education which will have the greatest need for new instructors in the future include high school cooperative programs, post-high school programs, and several areas of adult education.

Health Occupations. The number of teachers in the health occupations were expected to expand from 2,109 in 1965 to 2,957 in 1968, an increase of 40.2 percent. The instructional areas of Practical Nursing, Dental Assistants, and Medical Laboratory Assistants were projected as having the greatest demand for additional teachers.

Home Economics. State directors projected that the number of high school home economics teachers would expand from 20,856 in 1965 to 23,715 in 1968, an increase of 13.7 percent. The number of post-high school teachers was projected to expand from 1,095 in 1965 to 1,816 in 1968, an increase of 66.0 percent. State directors projected that the instructional areas of Food Services, Homemaking and Child Care and Development would have the greatest need for additional teachers.

Technical Education. Projections indicate that the number of technical education instructors would expand from 3,317 in 1965 to 4,633 in 1968, an increase of 39.7 percent. The instructional areas of Electronics, Data Processing and Mechanical Technology were expected to have the greatest need for additional teachers.

Trade and Industrial Education. State directors projected that the number of high school trade and industrial education teachers would expand from 10,680 in 1965 to 15,288 in 1968, an increase of 43.1 percent. The number of post-high school teachers was projected to expand from 7,705 in 1965 to 9,504 in 1968, an increase of 23.3 percent. State directors also projected that the Automotive Programs, including Auto Mechanics and Auto Body Repair, and the Metal Trades, including Machine Shop and Welding, would have the greatest future need for new instructors.

It was concluded that the reported shortage is, indeed, real. "The state directors predicted an increased demand for instructors in all of the vocational and technical areas by 1968. Both high school and post-high school programs are being expanded in all areas and teachers will be needed to fill the new positions."

(Editor's Note: See study below, "Enlisted Men Separating from the Military Service as a Potential Source of Teachers for Vocational and Technical Schools," for further research of this nature.)

Enlisted Men Separating From the Military Service as a Potential Source of Teachers for Vocational & Technical Schools. James W. Hensel, et. al. The Center for Vocational and Technical Education, The Ohio State University, Columbus. October 1967.

The specific objectives of this study to ascertain if the military services offer a potential source of teachers for vocational and technical education are described below.

1. To determine the percentage of enlisted men being separated from the military service who were interested in teaching as a future occupation.

2. To determine, for those interested in teaching: the age of the enlisted men being separated from the service, their educational background and occupational experience in relation to a vocational or technical subject area, their years of active duty and military rank, their vocational and technical course work background, the length of additional training they would be willing to take in order to qualify for teaching, the students they prefer to teach, and their willingness to move to a different part of the nation to accept employment.

3. To identify, from the number of respondents who had expressed an interest in teaching, enlisted men who possessed both educational and occupational qualifications to be considered as outstanding teacher prospects in vocational and technical schools.

Three military bases which are considered by military officials as typical separation centers were surveyed in this study. They were the U.S. Army Transfer Station, Fort Hamilton, N.Y.; U.S. Naval Station, Treasure Island, Calif. and McGuire Air Force Base, N.J.

As part of their separation procedure, 1, 152 enlisted men were administered a questionnaire to gather necessary information about them as to their interest in teaching educational background, occupational experiences, personal data, and other related information. Questionnaires from respondents who indicated a positive interest in teaching were further analyzed in terms of the characteristics described above under Objective No. 2.

In identifying those respondents who might be outstanding teacher prospects and the vocational or technical area they were best qualified to teach, the respondents had to meet the following three criteria:

1. Must have expressed an interest in teaching.

2. Must have one or more years of occupational experience within one area.

3. Must have taken one or more specialized courses within one subject area.

Hensel points our four limitations of this study: (a) he had no direct control over the manner in which the questionnaires were administered since they were administered at each location by military personnel; (b) only enlisted men who were separating from military service were questioned (retiring enlisted men were not included in the study); (c) the Army, Navy and Air Force were sampled, but the Marines, Coast Guard and Special Forces were not; and (d) no distinction was made between technical and trade level course work taken or occupational experience.

Of the 1,152 men completing the questionnaire, approximately 27 percent said they were interested in teaching as a future occupation. Broken down between the services, 24 percent of those separating from the Navy, over 25 percent of those separating from the Army, and almost 34 percent of those separating from the Air Force were interested in teaching.

In regard to the age category, it was found that those who were from 21 to 22 years old would be the best source of teachers. This age group seemed to be more interested in teaching and they were young enough to have the time to obtain the education needed to meet state certification requirements. Those enlisted men who had 13 or more years of education prior to entering the Armed Services expressed the greatest interest in teaching. Hensel feels they should be strongly considered in any search for teachers.

The study discloses a positive relationship between the military rate (rank) of the enlisted men and their interest in teaching. "The percentage of men interested in teaching increased consistently as the rate increased," and thus Hensel feels that any effort to locate prospective teachers would be facilitated by examining the higher enlisted ratings.

More than half the respondents interested in teaching had some occupational experience in the technical, trade and industrial area; 42 percent had completed course work in some phase of technical, trade and industrial education. Hensel says that this data suggests that the military could be an excellent source of potential teachers, especially in the electrical trades, mechanical service and hand trades.

More than half the men indicated they would teach at any level; 53 percent of them indicated their willingness to move to another state to teach. Almost 82 percent of the respondents interested in teaching expressed a willingness to take one or more years of additional training to qualify as teachers of vocational and technical subjects.

Nine percent of the 1,152, or 104 men, were considered by Hensel as outstanding teacher prospects for vocational and technical areas. They had indicated an interest in teaching and had the educational and experience background that would qualify them.

Based on the findings of this study, Hensel suggests areas where there is a need for additional research:

1. An effort should be made to obtain from the Army, Navy and Air Force the approximate number of men that separate from their services during a 12-month period. This would then provide for an estimate of the total number of

men that would be interested in teaching, the number of outstanding teacher prospects available, and the area in which the outstanding teacher prospects are best qualified to teach.

2. A system, compatible with present military classification structure, should be developed to locate and provide counseling or guidance services to enlisted men separating from the military who have an interest in teaching and possess the qualifications needed as future teachers in a vocational or technical subject area. This service should provide information on teacher certification requirements, salaries, areas in which teachers are needed, and other pertinent information.

3. Teacher training institutions should consider a program in which enlisted men separating from the service who are prospective vocational or technical teachers could meet certification requirements within a one to two year period.

Further study should be conducted with those men separating from the service who: (a) are over 24 years of age; (b) have education beyond the 12th grade; (c) have completed over three years of duty, and (d) are in Rank Group IV and V. The numbers of men within these groups were fairly small, but they expressed a higher degree of interest in teaching. An in-depth study of these men would provide more information on their potential as future teachers.

TOPIC FOUR: Other Studies

See Bibliography for information on availability of complete studies

Professional Personnel in State Divisions of Vocational Education: Policies, Practices and Requirements. Dick C. Rice. The Ohio State University, Columbus. November 1968.

This is a publication directed to leaders in vocational education on vocational division vocational division policies, practices and requirements that Rice believes will provide additional insights and data of use to state boards of vocational and technical education and to state administrative personnel in improving those situational factors within the department work climate which contribute to attracting and retaining high level personnel. The study had four major objectives:

1. To determine the existence and content of professional personnel policies and their effects on the operation of state divisions of vocational education.

2. To identify the training and experience qualifications of present state division professional staff members.

3. To ascertain training and experience needs of state division personnel.

4. To project the number of professional personnel needed in state divisions of vocational education through 1970.

Data were collected through the use of a five-part questionnaire which was developed and then used in interviews with head state supervisors and directors in state divisions of vocational education.

The majority of state directors viewed the practices followed in their states as adequate for attracting and retaining the number and quality of professional personnel needed. However, they viewed the problem of losing qualified professional personnel as becoming more serious. In this connection, they listed several strategies as being successful in retaining such personnel: salary increase, opportunities for further education, promotions, boosting morale, enhanced status such as a larger office, additional clerical help, and a change of assignment. Although salary changes were ranked first, it was found that division salaries are competitive with public school salaries, and thus the other factors have to be considered.

The importance of academic study was noted, as well as the experience gained in practical, on-the-job experience. The sources of professional personnel for state divisions of vocational education are (a) the ranks of high school vocational teachers in the state, (b) the related vocational field in the state, and (c) a combination of the two. Rarely are personnel from outside the state utilized.

The eight major recommendations presented by Rice, all having the intent of "providing a stimulus for division leaders to evaluate and strengthen their respective divisions of vocational education," are:

1. That state divisions of vocational education, in conjunction with state agencies of fiscal control, develop salary schedules which will enable them to successfully compete with the public schools, industry, business, and universities.

2. That state divisions of vocational education broaden their recruitment base to include personnel with specialized skills needed to staff newly emerging staff positions in planning, research and administration.

3. That the requirements for work experience in a vocational area be discontinued for state division positions not directly related to the teaching or supervising of vocational and technical programs.

4. That preservice graduate programs be developed to prepare personnel specifically for state division service.

5. That state divisions of vocational education develop professional leave policies which enable staff members to meet advanced study requirements imposed by divisions and to enable staff members to continue professional development throughout their service in the division.

6. That inservice training programs for state division of vocational education personnel rely heavily upon workshops, internships and simulation activities which bring participants into close proximity with actual leadership situations.

7. That evaluation procedures be adopted which utilize a self-evaluatory, professional improvement philosophy.

8. That state divisions of vocational education develop personnel policies which will provide employment security on a legal rather than a discretionary basis.

Profiles of Trade and Technical Leaders: Summary Report 1969. Melvin L. Barlow and Bruce Reinhart. University of California, Los Angeles, and California State Department of Education, Sacramento. 1969.

This research describes trade and technical personnel leadership in terms of expenditure of time, ideas about major issues, factors which are influential, and the manner in which professional advancement is achieved. The funds for this study, conducted at UCLA from 1966 to 1968, were provided by the Bureau of Industrial Education, California State Department of Education.

The leaders included in the study were educators with trade and technical education backgrounds, general education, industrial arts and other vocational area backgrounds. They are coordinators, directors, supervisors, deans, consultants, etc., whose names were supplied by the Bureau of Industrial Education and the Department of Correction. Two hundred and eighty-six of them filled out the Basic Description Questionnaire (BEQ) which provided information about their characteristics and indicated relationships of numerous variables.

These persons were then asked to fill out Work Analysis Forms (WAF) to provide a modified form of job analysis i.e., using estimates of time spent on different kinds of work to identify various aspects of administrative performance. Two hundred and twenty-four, or 79 percent, filled out these forms. All of the subjects were asked to rate suggestions for the solution of 15 major issues (previously identified by professional personnel in vocational education) in order of their importance. The ratings were performed by 239 on this Major Issues Questionnaire (MIQ).

The results of the research are presented in easily interpreted graphic form, as well as in concise summaries at the end of each section. For example, the results of the Basic Description Questionnaire (BDQ) indicate that the following are accurate descriptors of trade and technical leaders in California.

—More than 8 out of 10 (84.96 percent) spend 100 percent of their time in coordination, supervision and/or administration.

—Trade and technical educators invest large amounts of energy in formal education while employed in education.

—Younger administrators are entering vocational education with more education than their older colleagues and they are working toward more degrees.

Results of the Work Analysis Forms (WAF) indicate that leaders of trade and technical education in California spend the largest amounts of time "attending meetings and conferences, consulting with subordinates and consulting with "other persons."

In the Major Issues Questionnaire (MIQ), each leader was asked to rate 10 solutions for each issue. For example, one issue was, "How can vocational education achieve the status and prestige it needs to perform its proper role?" The preferred solution was, "Orient counselors to the values of vocational education for students."

The other major issues which were included are listed below.

How can the federal government be more effective in vocational education?

How can vocational education be brought into the mainstream of educatinn?

How can the shortage of qualified teachers be resolved?

How can the relationships between vocational and academic teachers be improved?

How can the relationships between vocational and academic leaders be improved?

How can we provide credit for student learning regardless of how or where it is achieved?

What kinds of institutions should offer vocational education?

How can we provide diversity and comprehensiveness in vocational education?

How can we improve vocational guidance?

How can we better respond to the challenge of the new technology?

How can vocational education respond to poverty problems?

How can we improve continuing occupational education?

How can we prepare craftsmen and technicians to teach?

How should we provide for the inservice training of trade and technical teachers?

Staffing. Harland E. Samson, University of Wisconsin, Madison. Pages 405-416, "Review of Educational Research," October 1968. American Educational Research Association, Washington, D.C.

In this chapter of the issue of *Review of Educational Research*, devoted to vocational, technical, and practical arts education, Samson presents a discussion of research related to staffing which has been conducted since 1962. He notes that, although several studies have been conducted during this period, there has been small contribution to improving the development of the science of teacher education. He states that the current research is characterized by "its ability to describe rather than to account for various concerns of staffing."

In this discussion staffing is treated under the following major headings: supply and demand, recruitment, characteristics and competencies, preparation, and innovations and trends. Sixty-eight major studies have been included in this review, some of which are noted below.

Edward A. Podesta reported on his work in obtaining an inventory of potential instructors in "Supply and Demand Factors Affecting Vocational Education Planning. A Methodological Study in Santa Clara County, California," Menlo Park, Calif. Stanford Research Institute, 1966; 153 pages.

William P. Spence reported on recruiting practices in his study, "Recruiting Methods Industrial Arts Uses," *Industrial Arts and Vocational Education/Technical Education* 56:48-51; June 1967.

In an attempt to identify the requisite competencies for instructors, Gerald Ross Fuller investigated interest, personality and attitude factors in his study "The Relationship of Characteristics of Prospective Student Teachers and Student Teaching Effectiveness in Agricultural Education." Doctor's thesis; Ithaca, N. Y., Cornell University, 1963; 411 pages.

Harry S. Broudy stated that teacher education should include "segments of a foundational dimension, general theory and specialized technology" in his study "Criteria for the Professional Preparation of Teachers," *Journal of Teacher Education* 16: 408-15; December 1965.

Change in the teaching environment was evidenced in the study by Nicholas C. Polos, "The Dynamics of Team Teaching"; Dubuque, Iowa, William C. Brown Co., 1967; 152 pages.

Samson concluded his remarks with the following recommendations for future research:

1. Determination of the selective shortages of vocational and technical staff.
2. Examination of supply and demand of staff in the context of the social, philosophical and political aspirations of our society.
3. Testing of antecedent conditions to teaching and consequent status changes.
4. Determination of the characteristics that are significant predictors of success and persistence in different subject areas and levels.
5. Evaluation of the influence of various staff utilization plans and curricular innovations on teacher preparation.
6. Examination of preparation requirements of new staff, including occupational experience, subject matter knowledge, and competence in educational technology.
7. Assessment of the nature of the assignment of staff and needs for inservice education.

Competencies of Vocational Plant Facilities Specialists. John L. Peterman, The Pennsylvania State University. September 1968. 170 pages.

The specific objectives of this study were to develop (a) criteria for the selection of a vocational plant facilities specialist; (b) criteria for the selection of assistants to a vocational plant facilities specialist; (c) instruments which would be useful in the selection process, and (d) a selected bibliography of informative literature useful to those responsible for planning, implementing and evaluating vocational plant facilities.

Initially, Peterman developed a list of factors considered to be important in developing criteria and instruments for the selection of a plant facilities specialist and assistant. This list was based on information obtained from a review of the literature, and from interviews with experienced vocational educators, interested private corporations, and interested state-level personnel. This list was divided into two parts—one for the specialist and one for the assistant.

A questionnaire to provide validity information on the two lists was submitted to a jury of experts, after which the factors were identified as instrument items. A second questionnaire was then submitted to all the vocational administrators, full-time teachers and part-time trade and industrial teachers in the central region of Pennsylvania. Item weights of responses on this questionnaire were then tabulated and computed. The analysis of the data thus collected gave Peterman information on (a) validity of the instruments, (b) reliability of the instruments, and (c) appropriateness of the included items for use as criteria for the selection of plant facilities specialists and assistants.

The necessary competencies constitute a description of the role of a specialist or assistant, and they also provide a basis for evaluating vocational teacher education curriculum for the preparation of a plant facilities specialist and/or assistant. Peterman feels that teachers can use this list of competencies as a checklist to measure progress; the specialist or his assistant can use the list as a basis for choosing personal goals and for self-evaluation. Some sample items are listed below.

Assistant: Should consider all the aspects of safety as an integral part of any program; must understand long-range planning; must be able to use catalogs, take expert advice and order the proper equipment.

Specialist: Must show the leadership abilities needed to secure the active cooperation of community, staff and organizations; would recognize that the planning of facilities has to be accompanied by written educational specifications; Is willing to spend the necessary time and effort to visit and inspect other similar school plants.

Peterman makes the following recommendations for the application of this study to trade and industrial education in the United States:

1. That the criteria developed from this study be used as guides in providing an objective approach to the formulation of state plans incorporating within such plans: (a) establishment of plant facilities specialists and their assistants, and (b) establishment of educational specifications guidelines.
2. That the developed instruments be applied on state and nationwide surveys prior to adoption of such vocational state plans.
3. That further identification of competencies of plant facilities specialists and their assistants can best be accomplished through further study or research of: (a) basic general education, (b) professional education, (c) specialized professional education, (d) specialized-field preparation in school or on the job, and (e) direct experience.
4. That an analysis of inservice development of vocational staff members to determine which competencies can best be developed on the job.
5. That an evaluation of the proficiency of local vocational staff members in relation to the competencies needed by them in planning, implementing and evaluating plant facilities.
6. That an identification of the role of state and local directors and supervisors in improving the competence of vocational educators involved in plant facilities planning, implementation and evaluation be studied.

MAY ISSUE . . . The final issue for this school year will present studies on the topic "Evaluation and Accreditation."

PLAIN TALK

THERE'S A WORD FOR IT—"OPPORTUNE." *RV's* editor, as many or most AVA conventioneers who make New Year resolutions, vows to put together the many loose ends which hang over from the big annual meeting. It is more than a paradox—it is uncanny—that events, conditions and activities in research and research reporting converge in "Plain Talk" for this issue. To escape the sensational, let's call it *opportune.*

Research Meetings at Dallas, 1968. *Research Visibility* cannot and probably will not have the space and time to consolidate the many research reports which contributed to the highly successful meetings in Texas. Perhaps some medium can be found for a summary of this nature. Of prime *organizational* importance, particularly in recognition of the *new convention format for Boston 1969,* the vocational research community should energize its communications for the future impact of (a) the new AVA *Department* of Research and Evaluation, (b) the American Vocational Education Research Association, (c) research implications for the reconstituted AVA *Divisions*, and the (d) continued leadership impact of the AVA Research Committee, now dissolved.

Forgetting, if one can, the importance of the new convention format, it is critical to have organized the total, continuing research effort over the long haul of the calendar year. If that fact is not sufficient challenge, consider the problem of the coordination of the importance of research to *all* of the other *AVA Departments* (adult, secondary, post-secondary, teacher education, administration-supervision, a related and special programs).

Obviously, an impact of these dimensions must be focused also in the AVA Divisions. Inasmuch as Policy Committees of the Divisions and Planning Committees of the Departments come together in the spring of 1969, time's awastin'—and it's opportune. To clarify and communicate, *RV* will attempt to secure and consolidate in "Plain Talk" next month important organizational information for the interested readership.

Planned Action on Appropriations Is Opportune. Very highly related to communication and organization for research effectiveness is the problem of taking action to overcome the lag between authorizations and appropriations. Momentarily, the Federal, Budget for fiscal 1970 for research is hardly a token. The *AVA Washington Letter* puts it this way. "Research efforts of the past seem to be "out the window." Only a meager amount of $1.1 million to the states is budgeted. The budget does not even conform to P.L. 90-576 which calls for an amount of 10 percent of funds appropriated under Part B of the Act." Obviously this situation will not be corrected by complacency and trust in the federal planners; individual and concerted action must be taken immediately with members of Congress whose enthusiasm and endorsement of the new VEA '68 should be taken in account by budget planners. After all, Congress authorized $56.5 million for research purposes!

Similar emasculation is seen in the budget for teacher education in the Education Professions Development Act, with $105 million appropriated for *all* of the EPDA, in fact for Part F of the EPDA (Title II of VEA '68) there is an appropriation of *zero.* Unless this condition is corrected, the only access of vocational education to EPDA will be through Parts C and D.

Commendation and a "Tip of the Hat." The conscientious work and continuing successful effort of the AVA Research Committee over the years deserve more than a salute. The Committee over recent years which have been eventful and troublesome has served with great distinction and accomplishment. With the assimilation of the Committee into the new AVA Department of Research and Evaluation, congratulations are especially in order for Chairmen Rupert N. Evans and Jerome Moss, Jr., of the University of Illinois and University of Minnesota, respectively. Hopefully, all members of the Committee will continue their leadership and support through the new department and other organizations.

A capstone and "grand finale" of the Research Committee was the construction and presentation of a research policy framework to the AVA Board of Directors. This statement has been approved by the Board, and should have strong consideration for a take-off for the Department of Research and Evaluation in the near future.

Professional Personnel—The Avalanche of Literature—The Bulge of Winter Meetings. In keeping with at least the spirit of this issue of *RV*, the preparation of professional personnel, publications and events too numerous to digest in available space suggest that special attention be focused on *RV's* Bibliography this month. This invitation is sharpened in terms of both research and the development of professional personnel.

In addition to the professional literature, planners have been active in formulating national and regional conferences and clinics for all aspects of the new provisions of VEA '68 and their understanding and application. Inasmuch as these meetings are specifically designed for the implementation of new guidelines and regulations of the new legislation, it is incumbent that the professional vocational community participate and exert great input. OE Division of Vocational and Technical Education staff has given impetus to the national conferences in cooperation with selected universities and consultants.

It would be a classic understatement of the year to assert that the events of the next several months are critical to the development of vocational and technical education for the years ahead. It may also be another understatement to assume that the vocational education profession will be vigorously invited to assist in the shape of things to come unless it learns from lessons of the past and aggressively asserts itself at all stages and levels of this developmental process.

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"Field Study in Industry for the Preparation of Industrial Arts Teachers. Final Report, Volume 1." James R. Hastings *et. al.* State University of N. Y., Oswego, N. Y. College at Oswego. August 1967. (Volume 1—506 pages, ERIC # 018 670, MF-$2.00, HC-$20.32.) (Volume 2—393 pages, ERIC # ED 018 671, MF-$1.80, HC-$15.80.)

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"The Junior College District of St. Louis and St. Louis County Teaching Internship-Core Program." Midwest Technical Center (MTEC), 7508 Forsyth Blvd., Clayton, Mo. 63105. 1967. 12 pages.

"The Preparation of Curriculum Materials and the Development of Teachers for an Experimental Application of the Cluster Concept of Vocational Education at the Secondary School Level. Volume 1." Donald Maley. University of Maryland, College Park, August 1967. 306 pages. (ERIC # ED 016 841, MF-$1.25, HC-$12.32.)

"Television Recordings and Teacher Education—New Directions." Robert H. Pinney and Robert J. Miltz. Stanford University, Calif. Stanford Center for R and D. 25 pages. (ERIC # ED 019 847, MF-$0.25, HC-$1.08.)

"Research and Study in Teacher Education." Research Reporter Series No. 14. *AACTE Bulletin*, Vol. XXI, No. 9. October 17, 1968. 23 pages. (Available in limited numbers on request from the American Association of Colleges for Teacher Education, 1201-16th St., N.W., Washington, D. C. 20036.)

"Pilot Training Project Based on Directed Occupational Experience for Teachers of Marketing and Distribution." Warren G. Meyer. University of Minnesota, Minneapolis. June 30, 1967. 149 pages. (ERIC # ED 016 805, MF-$0.75, HC-$6.04.)

"Internships in Teacher Education. Forty-Seventh Yearbook." The Association for Student Teaching, Washington, D. C. 1968. 230 pages. (Available from Publications—Sales Section, NEA, 1201-16th St., N.W., Washington, D. C. 20036. Price: $4.75. Discounts: 2-9 copies, 10 percent; 10 or more copies, 20 percent.)

"Teacher Education in a Social Context: A Study of the Preparation of School Personnel for Working with Disadvantaged Children and Youth." Gordon J. Klopf and Garda W. Bowman. Bank Street College of Education. 364 pages. 1966. Published by Mental Health Materials Center, Inc., 104 E. 25th St., New York, N.Y. 10010.

TOPIC FOUR: Other Studies

"Profiles of Trade and Technical Teachers: Summary Report 1966-1967." Melvin L. Barlow and Bruce Reinhart. University of California and California State Department of Education. 1967. 38 pages. (Copy available at no charge from R. S. Nelson, chief, Bureau of Industrial Education, California State Department of Education, 721 Capital Mall, Sacramento, Calif. 95814.

"Feasibility Study for Continuing Education of Medical Librarians." Alan M. Rees *et. al.* Case Western Reserve University, Cleveland, Ohio. January 15, 1968. 70 pages. (CFSTI # PB 179-886, HC-$3.00, MF-$0.65.)

"Statements of Career Intentions: Their Relationship to Military Retention Problems." H. Alton Boyd, Jr., and Wiley R. Boyles. George Washington University, Alexandria, Va., Human Resources Research Office. July 1968. 21 pages. (CFSTI # AD 676-790, HC-$3.00, MF-$0.65.)

"Special Training Project for Educational Researchers in the Nation's Large Cities (December 1, 1966-January 31, 1967). Final Report." Virgil E. Christensen. The Center for Vocational and Technical Education, The Ohio State University, Columbus. March 1967. 77 pages. (VT 002 335; for ERIC # see March 1969 *Research in Education.*)

"Agricultural Education in Australia. ACER Research Series 80." R. N. Farquhar. July 1966. 329 pages. (ERIC # ED 014 627. Available only from Australian Council for Educational Research, Hawthorn, Victoria, Australia.)

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"Bibliography of Scientific and Technical Bibliographies. Part 2: Subject Index." M. Bloomfield *et. al.* Army Biological Labs, Frederick Md. 1968 391 pages. (CFSTI # AD 676-798, HC-$3.00, MF-$0.65.)

"R and D Abstracts, Volume 21, Number 9, May 1-15, 1968." Ministry of Technology, London, England, Technical Information and Library Services. May 15, 1958. 83 pages. (CFSTI # AD 676-945, HC-$3.00, MF-$0.65.)

"Adult Education in Selected Vocational Homemaking Programs in Arkansas, Kansas, and Oklahoma." Florestine B. Rodgers. Oklahoma University, Norman. 1964. 88 pages. (Available as master's thesis from the University of Oklahoma, Norman, Okla.)

"Attitudinal Changes in the Student Teacher—A Further Analysis. An Example of an Orthogonal Comparisons Analysis Model Applied to Educational Research." E. Wayne Courtney. Stout State University, Menomonie, Wisc. January 1965. 38 pages. (VT 005 191; for ERIC # see February 1969 *Research in Education.*)

"Transferring Military Experience to Civilian Jobs, A Study of Selected Air Force Veterans." U.S. Department of Labor, Washington, D. C. Manpower Administration. October 1968. Monograph No. 8 Available from Manpower Administration, U.S. Department of Labor, Washington, D. C. 20210.

"AACTE Publications." AACTE, Washington, D. C. 1968. 20 pages. Available from The American Association of Colleges for Teacher Education, 1201-16th St., N.W., Washington, D. C. 20036.

"A Guide for Developing Occupational Programs in Home Economics Education." F. Louise Keller. South Carolina State Department of Education, Columbia. 1966. 25 pages. (ERIC # ED 012 749, MF-$0.25, HC-$1.00.)

DOCUMENT SOURCES

The material reported on in *Research Visibility* may be obtained from several sources. The source of each publication is indicated in each entry. The key to the abbreviations used there and instructions for obtaining the publications are as follows:

CFSTI—Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. Copies of reports with this symbol may be purchased for $3 each (paper) or 65 cents (microfiche). Send remittance with order directly to the Clearinghouse and specify the accession number (AD or PB plus a 6-digit number) given in the listing.

ERIC—Educational Resources Information Center, EDRS, c/o NCR Co., 4936 Fairmont Ave., Bethesda, Maryland 20014. Copies are priced according to the number of pages. The MF price in the listing is for microfiche; the HC price is for paper copies. Send remittance with order directly to ERIC-EDRS and specify the accession number (ED plus a 6-digit number) given in the listing. *How to Use ERIC*, a recent brochure prepared by the Office of Education, is available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402; the catalog number is FS 5.212.12037; price: 20 cents.

GPO—Government Printing Office. Send orders directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, with remittance for specified amount.

MA—Manpower Administration. Single copies free upon request to U.S. Department of Labor, Manpower Administration, Associate Manpower Administrator, Washington, D. C. 20210

OTHER SOURCES—Where indicated the publication may be obtained directly from the publisher at the listed price.

RESEARCH VISIBILITY

Synthesis / Application / Dissemination

Evaluation and Accreditation

Research Visibility questionnaire. At this writing a readership survey (10,000 sample) is nearing completion through the courtesy and cooperation of the Division of Comprehensive and Vocational Education Research DCVER), U.S. Office of Education. To the extent possible with the use of a postcard questionnaire, the face and substance of *RV* may change quite dramatically to capitalize on the suggestions of the survey respondents.

The survey sample was chosen through systematic selection, *i.e.* mailing a questionnaire to every fifth name on the AV JOURNAL mailing list. Reactions and suggestions from each *RV* reader are solicited. Admittedly, the JOURNAL readership is diverse and specialized; incomplete survey returns indicate readership preference to keep *RV* by nature and content *as it is*—but "keep it coming." Agree? The results of this survey will be published in a future AV JOURNAL.

Anyone for bound copies? *RV's* coverage since last September is indexed on 126. Bound copies (Vol. No. 2) of this treatment will be available by late May for $1.50 to defray the costs of printing, binding, postage, and handling. There are limited copies of bound Vol. No. 1 still available for $1.25 (issues of September 1967 through May 1968). Both volumes may be purchased at a discount rate of $2.50; if 10 or more individual copies or sets are ordered, there is a special discount rate of 10 percent.

The focus of the profession. The February *Beacon* of the American Vocational Education Research Association raises a series of important questions related to professional concentration and progress for 1969: (a) a greatly increased membership in AVERA; (b) the publication of a research journal to reflect the professional voice of AVERA; (c) a program of scholarships for graduate students in occupational education; (d) a task force or consortium to review and bring attention to research areas of greatest potential; (e) liaison with the Office of Education, and (f) the organization of a professional placement service for AVERA members. The newsletter makes the point that the foregoing are some of the activities in which AVERA *might* engage to bring about focus of the profession; it leaves open-ended the question, "But what activities will we engage in?"

The professional soul-searching process is opportune. It is equally important to all members and their affiliations in the departments and divisions of the American Vocational Association. AVA's director of post-secondary development, John P. Hudson, in the AV JOURNAL (March 1969) made an analysis and explanation of the new organizational AVA

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EDITOR'S NOTE

Research Visibility is a research project of the American Vocational Association. The purpose is to give visibility to significant research: experimental, demonstration and pilot programs; upgrading institutes, seminars and workshops; and other leadership development activities for teachers, supervisors and administrators. The *Research Visibility* report synthesizes important projects which have been reviewed, selected and analyzed for their value to vocational, technical and practical arts educators, guidance personnel, and other leaders in education, manpower and related fields. A composite bibliography of significant research and development materials is included.

The project is cooperatively financed by the American Vocational Association and a Vocational Education Act of 1963 grant (OEG 2-7-070633, project 7-0633; "Synthesis and Application of Research Fundings in Vocational Education").

George L. Brandon, professor in residence (Pennsylvania State University) is editor of *Research Visibility*. He is assisted in the preparation of these reports by Research Assistant Anne Ware.

As Research Visibility is prepared under a U. S. Office of Education grant, it is not included in the American Vocational Journal copyright.

Studies Reported in Volume Two

(September 1968-May 1969)

DISADVANTAGED YOUTH: RURAL POVERTY AND THE URBAN CRISIS (SEPTEMBER 1968)

MANPOWER REPORTS
- The 1967 Manpower Report
- The 1968 Manpower Report
- National Goals in the 1970s

TRAINING YOUTHFUL OFFENDERS
- Project Challenge
- Vocational Training in Jail

CURRICULUM DEVELOPMENT PROJECTS
- Teaching Basic Talents
- Project PREP
- Citizenship Education
- Unskilled Union Members

SOCIOLOGICAL STUDIES
- Social Influences on Goals
- British Isles vs. United States
- Equal Employment Opportunities
- Equal Employment Practices

GUIDANCE AND TRAINING CENTERS
- Centers for Dropouts
- Job Counseling Center

VOCATIONAL EDUCATION FOR GIRLS AND WOMEN (OCTOBER 1968)

NEW DIRECTIONS IN BUSINESS EDUCATION
- Training Scientific Secretaries
- Acquisition of Typing Skill
- Clusters of Office Work Tasks
- Preservice Education

HOME ECONOMICS—IN SCHOOL AND COMMUNITY
- Wage-Earning Occupations
- Homemaker Services Film
- Child Development Training

FOOD SERVICE OCCUPATIONS
- Curriculum Development
- Work Instruction Programs

CAREER OPPORTUNITIES IN HEALTH SERVICES
- Illinois Program
- Bio-Medical Equipment Technology
- Mental Health Nursing
- Health Technology
- Medical Records Technician
- Teacher Education Institute
- Subprofessionals

WOMEN IN INDUSTRY
- (See Bibliography)

CAREER PATTERNS FOR WOMEN
- Women's Work Patterns

POST-SECONDARY AND ADULT EDUCATION (NOVEMBER 1968)

APPRENTICESHIP AND OTHER IN-PLANT TRAINING
- Apprenticeship Training
- Apprenticeship in Wisconsin
- Training of Maintenance Workers

OUT-OF-SCHOOL YOUTHS AND ADULTS
- Skills, Earning Capacity and Rural Manpower
- Common Behavioral Factors
- Retraining Under the MDTA

POST-SECONDARY INSTITUTIONS AND PROGRAMS
- Hospitality Education in Junior College
- Law Enforcement Education
- Manpower Utilization of the Unemployed
- Public Junior College Education

HUMAN RESOURCES AND VOCATIONAL GUIDANCE SERVICES (DECEMBER 1968)

CAREER DEVELOPMENT
- Floundering and Trial After High School
- Stimulating Career Exploration
- Career Simulation
- Presenting Occupational Information to High School Students
- Vocational Decision-Making of Community College Youth

SELECTION, PLACEMENT AND FOLLOW-UP
- How Fare MDTA Ex-Trainees?
- High School Cooperative Trainees
- Transition From High School to Work

OCCUPATIONAL TRENDS
- Projection of Occupational Trends
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ADMINISTRATIVE PROBLEMS IN VOCATIONAL EDUCATION (JANUARY 1969)

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- Administration at the State Level
- Role of State Education Departments
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THE LOCAL ADMINISTRATOR
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- Junior College Advisory Committee

COST/BENEFIT ANALYSIS
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- Innovations in Education

PLANT AND FACILITIES
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- Urban School Facilities
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RESEARCH ON RESEARCH
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- Priorities in Technical Teacher Education

SEMINARS AND INSTITUTES ON RESEARCH
- Research and Curriculum Development
- T&I Teacher Education
- Choice of Vocational Education as an Educational Opportunity
- MDTA Experimental, Demonstration Findings
- Agricultural Education

OTHER STUDIES
- Directive Teachers Versus Non-Directive Teachers
- Forecast for New Types of Technicians

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- Identifying Technical Concepts of Workers
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- Hospitality Education Curriculum
- Curriculum Development

CURRICULUM WORKSHOPS
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LABORATORIES AND MATERIALS
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- Food Processing Technology

OTHER STUDIES
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ON-GOING USOE PROJECTS

PREPARATION OF PROFESSIONAL PERSONNEL FOR VOCATIONAL EDUCATION (APRIL 1969)

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- Instruction in D.E.
- Experience in Agricultural Distribution
- Professional Internship
- Innovative Teacher Education Programs
- Teacher Education
- Teacher Education in Small Colleges

LEADERSHIP TRAINING
- National Program Development Institutes
- Institute for Young Farmer Education

TEACHER EDUCATION
- T&I
- Demand for Teachers
- Enlisted Men: a Potential Teacher Source

OTHER STUDIES
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- Profiles of Trade and Technical Leaders
- Staffing
- Vocational Plant Facilities Specialists

EVALUATION AND ACCREDITATION (MAY 1969)

COST ANALYSIS
- Research on Economics of Vocational Education
- Vocational Program Administration in Secondary Schools

FOLLOW-UP STUDIES
- Process and Product of T&I High School Level
- Vocational Education in the U.S.

BEHAVIORAL ANALYSIS
- Effectiveness of Self-Instructional Methods

OTHER STUDIES
- Occupational Education Programs
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SUBJECTS PREVIOUSLY REPORTED
- Guidance Programs and Impact on Students
- National Adult Basic Education Teacher Training Program
- Standards and Evaluative Criteria

framework. The obvious problem is not new to the profession and its focus in AVA, but it is highly critical especially during this time of transition in which vocational and technical education has assumed major importance in the economy and welfare of our country and its citizens. Clearly, the challenge in AVA has become the marshalling of professional manpower on an intensive, *around-the-calendar* basis to the many critical problems of vocational and technical education these days. This activity must go far beyond the planning and conduct of annual professional meetings at the convention. This fact does not disparage the importance of the annual meeting, but it does indicate that action solely for convention purposes is woefully "too little, too late"!

Personnel of the AVA Department of Research and Evaluation. Current planning committee personnel who will supply research focus in vocational and technical education in AVA and the Divisions which they represent are:

Earl H. Knebel, Texas A & M University, College Station, Texas 77843. (Agricultural Education—two years)

Dennis Roley, Route 12, Box 752, Olympia, Wash. 98501. (Business and Office Education—one year)

Leonard Maiden, University of South Carolina, Columbia S.C. 29208. (Distributive Education—three years)

Helen Nelson, New York State College of Home Economics, Cornell University, Ithaca, N.Y. 14850. (Home Economics Education—two years)

Leslie L. Gibbons, Colorado State University, Fort Collins, Colo. 80521. (Industrial Arts—one year)

V. E. Burgener, Board of Vocational Education & Rehabilitation, 405 Centennial Bldg., Springfield, Ill. 62706. (New and Related Services—two years). Chairman.

Aaron J. Miller, Ohio State University, 1900 Kenny Rd., Columbus, Ohio 43212. (Technical Education—one year)

Durwin M. Hanson, North Carolina State University, Box 5096, Raleigh, N.C. 27607. (Trade & Industrial Education—three years)

The above-listed personnel are in strategic positions through their Research and Evaluation Planning Committee and its representation on the Policy Committees of the AVA Divisions to construct and set in motion a Program of Work for the Department. Vocational researchers should take the initiative to communicate with the Committee and express ideas and judgments for the Program of Work and its implementation.

Sparking research in Vocational and Technical Education. Oklahoma State University, through its RCU and the leadership of William Stevenson and William Hull, with excellent cooperation of USOE's Bruce Blackstone and Otto Legg, sponsored and conducted the National Research Conference at Oklahoma City, Feb. 18-20. Proceedings (presentations and group discussions) of the conference will probably be available and will include a summary which will filter into the nine regional clinics scheduled for April and May, 1969.

It is apparent that the research community in vocational education has become wide and diversified in both its geographical and disciplinary relationships. The current low level of appropriations, as compared with authorizations of VEA '68, makes clear the need for militant action to provide increased resources for the research program.

There are numerous other growing pains, not the least of which are communications, coordination and the need for additional monetary support on the parts of the individual states. Increasingly, and far from being a new wrinkle in vocational education, the program and research related to it are becoming major parts of industrial development in the states. This fact is additional evidence that professional researchers have reached the stage where their total effort and planning for the future must be carefully organized and focused for maximum impact and activity upon research, diffusion and implementation problems.

TOPIC ONE: Cost Analysis

See Bibliography for information on availability of complete studies

Review and Synthesis of Research on the Economics of Vocational Education. J. Robert Warmbrod. The Center for Vocational and Technical Education, The Ohio State University. Columbus. November 1968.

This paper is one of a series of information analysis papers developed and released by the ERIC Clearinghouse on Vocational and Technical Education at The Ohio State University. It was written to introduce vocational educators to research and writings on the economics of vocational-technical education, to identify relevant issues and problems pertinent to research and to cite appropriate research and writings pertaining to these issues.

Warmbrod has placed emphasis on the description, review and synthesis of research and writings. Writings are reviewed which identify and describe a theoretical and methodological framework within which research on the economics of occupational education can be conducted and evaluated. Published critiques of the research which is reviewed are also cited.

There are five sections in the publication:

1. An overview of the major writings on the economics of education.
2. A description of the concepts and techniques of cost-benefit and cost-effectiveness analysis of public school and manpower training programs.
3. The results of research using cost-benefit and cost-effectiveness models (two sections).
4. Additional research relating to the economics of vocational-technical education.

Warmbrod has directed this publication to persons who are "actively involved in planning, conducting and evaluating vocational-technical education programs," and "for vocational education researchers and others interested in or conducting research pertaining to the economics of vocational-technical education."

A few of the one hundred documents cited in this publication are listed below to give an indication of the research reviewed.

Benson, Charles S. "Economics and Education." *Review of Educational Research* 37:96-102; February 1967.

Carroll, Adger B. and Ihnen, Loren A. *Costs and Returns of Technical Education: A Pilot Study.* Washington, D.C.: Office of Manpower Policy, Evaluation and Research, U.S. Department of Labor, July 1966, 52 pp. (ED 015 247, MF-$0.25, HC-$2.36.)

Davie, Bruce F. "Benefit/Cost Analysis of Vocational Education: A Survey." In Arnold Kotz (Ed.), *Occupational Education: Planning and Programming.* Volume Two. Menlo Park, Calif.: Stanford Research Institute, Sept. 1967, pp. 309-330. (ED 017 734, MF-$1.25 HC-$11.24.)

Kaufman, Jacob J.; Stromsdorfer, Ernst W.; Hu, Teh-wei; and Lee, Maw Lin. *An Analysis of the Comparative Costs and Benefits of Vocational Versus Academic Education in Secondary Schools.* Preliminary Report, Project No. O.E. 512. University Park, Pa.: Institute for Research on Human Resources, October 1967, 156 pp.

Kraft, Richard H. P. (Ed.) *Education and Economic Growth.* Proceedings of the First Annual Conference on the Economics of Education. Tallahassee, Fla.: Educational Systems Development Center, Florida State University, 1968. 189 pp.

Pearman, Elizabeth H. *Bibliography of Cost-Benefit Analysis and Planning-Programming-Budgeting.* McLean, Va.: Research Analysis Corporation, February 1966, 44 pp.

Warmbrod concludes that the research of economists shows the importance of education in the economic growth of our society, and, thus, he recommends that research on the economics of vocational-technical education be conducted within the theoretical framework of the economics of education.

Important questions within this context refer to the allocation of resources to, and within, the educational sector. Intelligent allocation of resources rests on the acquisition of adequate data through research. This data will influence policy decisions concerning the agencies, public schools or otherwise, which can conduct vocational education programs most efficiently. Vocational educators must, therefore, make themselves aware of the research and concepts of cost-benefit analysis, cost-effectiveness analysis, and planning-programming-budgeting systems.

Warmbrod notes that the findings of cost-benefit and cost-effectiveness studies are as yet inconclusive; there is, however, strong evidence that vocational education is a sound investment. In fact, economic studies of manpower training and retraining programs consistently indicate the value of this type of occupational education. He recommends cost-effectiveness analysis as the most appropriate technique for evaluating vocationl-technical education because it allows non-economic as well as economic benefits to be related to the costs of such programs. Since the research reviewed in this report indicates that there is insufficent cost and benefit data now available for meaningful analyses, Warmbrod asks that vocational educators make an effort to identify appropriate cost and performance criteria that can be used in cost-effectiveness analysis.

The research already conducted by vocational educators has been descriptive rather than analytical, and research conducted by economists has been limited in the identification and measurement of the benefits of vocational-technical education. Warmbrod suggests that greater joint efforts by the vocational educators and economists would yield more useful research pertaining to the effectiveness of vocational-technical education. He concludes with the thought that vocational educators "can make significant contributions in designing and conducting research pertaining to the economics of vocational-technical education."

An Analysis of Cost and Performance Factors in the Operation and Administration of Vocational Programs in Secondary Schools. Final Report. Richard L. Dueker and James W. Altman. American Institute for Research in Behavioral Sciences. October 1967.

Sixteen comprehensive and 16 vocational schools participated in a study to identify the kinds of cost and related data that can be obtained to aid planning and evaluating vocational education. The attrition of the schools in this sample, however, made the authors skeptical of any substantive results. Limited data were collected from the schools by means of questionnaires and interviews and from earlier studies. An organized body of performance data was not available at any of the schools, and available cost data did not readily lend themselves to meaningful analysis. Findings, if accepted at face value, suggested the following:

1. According to data reported by five vocational schools and four comprehensive schools, the general cost of education in comprehensive schools was lower than in vocational schools for 1961-62, but rose much more rapidly to approximate the cost in vocational schools by 1965-66.

2. Data from four comprehensive schools showed that the costs of academic-general (non-vocational) education were higher than for vocational education in comprehensive high schools for the fiscal years 1961-62, 1963-64, and 1965-66.

It did not appear likely that available cost or performance data would serve the long-range needs of educational evaluation and planning. It was recommended that the U.S. Office of Education undertake a feasibility and preliminary design study for an evaluation and planning information system which would encompass all education, not only vocational education.

Research and Implementation in Vocational Education. This publication was prepared by Gordon F. Law, professor of education, Department of Vocational-Technical Education, Rutgers-The State University. Dr. Law, formerly director of research for AVA, consulted with leaders in the field as he gathered this material. March 1969. 23 pages. Available from AVA. Price: 60 cents.

The Process and Product of T&I High School Level Vocational Education in the United States. Volume II: The Process. M. U. Eninger. Educational Systems Research Institute, Pittsburgh. April 1968.

This study, which began in 1963, describes the process and product of trade and industrial secondary school vocational education in the United States. Although there have probably been changes in vocational education as a result of the 1963 Vocational Education Act, the author believes that T&I vocational education has not changed substantially "in terms of the variables reported in this study"—that there are no data to prove otherwise.

The objectives of the study are listed below.

1. To describe post-graduation occupational and education experiences of a nationwide sample of T&I course graduates randomly selected from the classes of 1953, 1958 and 1962. The measures of description included:

- Time required to get the first full-time job.
- Methods used to get the first full-time job.
- Relatedness of first job to course studied.
- Reasons for failure to get jobs in field studied.
- Initial and terminal earnings on jobs held.
- Satisfaction ratings on jobs held.
- Relatedness of all jobs held to course studied.
- Geographic mobility of vocational graduates.
- Employment security since graduation.
- Employer stability since graduation.
- Earnings progression since graduation.
- Amount and type of post-high school education.
- Amount and type of college level education.
- Non-vocational measures reflecting personal growth.

2. To compare vocational and academic program graduates from the same schools and graduating classes in terms of post-secondary school occupational, educational and other relevant experiences, to determine if vocational graduates did better, not as well, or about the same as academic program graduates with a comparable amount of formal education.

3. To determine the effect of the following variables upon the graduate's occupational and educational experiences: (a) type of school attended; (b) size of school attended; (c) general unemployment rate at time of graduation, and (d) the race of the graduates.

The findings relevant to the above objectives were reported in Volume I of this study, "The Product." A summary of these findings is available in Volume II.

The objectives of the study presented in this volume are:

1. To describe the relevant school characteristics of a randomly drawn sample of 100 secondary schools offering a T&I vocational program.

2. To describe the relevant human resource characteristics of the vocational and academic program graduates selected for the follow-up study.

3. To identify what relationship exists between school and student characteristics on the one hand and the post-secondary school occupational and education experiences of T&I program graduates.

4. To provide general recommendations for action and research related to improving the efficiency and effectiveness of T&I vocational education in the United States.

The U.S. Office of Education directory *Preparatory Trade and Industrial Training Programs in Public Schools* was used as a source to identify the schools that offered a secondary school level T&I program; the author chose his sample only from those schools that offered three or more T&I vocational courses. There were 667 such schools, 100 of which were chosen at random on the basis of geographic region, total school enrollment and type of school. The school enrollment totals which were used as groupings were (a) less than 500; (b) 500-1500, and (c) more than 1500. The types of schools were vocational, technical, vocational-technical, and comprehensive.

Several forms were developed and administered to obtain the information desired, some of which were the School Principal Data Form, Vocational Course Data Form, Vocational Shop Data Form, General Classroom Form, Library Personnel and Services Form, Vocational Teacher Form, Counseling Personnel and Services Form, Placement Personnel and Services Form, and the Student Record Form. All the data were generated by school personnel, and a visiting team was utilized to finalize the data collection. These visitations were completed by the fall of 1964.

Eninger's general conclusion is as follows:

"Vocationals who work in their field of study do better than direct-to-work academic graduates on every occupational outcome measure. Those who do *not* work in their field of study do about the same as the academic graduates on all measures with this exception: They get their first job quicker, but have lower present earnings than the academics after 6 and 11 years out of school. The earnings difference is substantial at the 11-year point; a 25 cents an hour difference is equivalent to $1,040 per 52 week year."

New Routes in Vocational Education. The March 1969 issue of *American Education* has a section devoted to "New Routes in Vocational Education." Included are articles by Lowell A. Burkett, executive director of AVA; Leon P. Minear, director of U. S. Office of Education Division of Vocational and Technical Education; Richard C. Bixler, an Ohio-based freelance writer; Michael Russo, chief of the Planning and Evaluation Branch of the U. S. Office of Education's Division of Vocational and Technical Education, and Grant Venn, associate commissioner, Bureau of Adult, Vocational, and Library Programs, U. S. Office of Education. (Reprints of this section are available from the Superintendent of Documents, U. S. Government Printing Office, Washington. D. C. 20402. Specify OE-80060. Enclose check or money order; price: 30 cents.)

Evaluating the Efficiency and Effectiveness of Self-Instructional Methods for Selected Areas of Vocational Education. Final Report. John L. Coffey et al. Battelle Memorial Institute, Columbus Laboratories, Columbus, Ohio. February, 1968.

The major objective of this study was to evaluate the efficiency and effectiveness of self-instructional methods for selected areas of vocational education—automotive mechanics, cosmetology, drafting, electrical-electronics, machine trades, sheet metal and welding. The study was concerned with (a) skill identification along with the selection of those skills with broad applicability and (b) the investigation of self-instructional methods for teaching the selected skills.

A behavioral catalog was developed which contained those general behaviors common to trade and industrial education, and trade-specific examples of how these behaviors are demonstrated. Ten of these skills, chosen to serve as the basis for evaluations of self-instructional methods, are:

SELF-INSTRUCTIONAL UNITS

1. Hand tool operation—operation of screwdrivers and the hacksaw.
2. Oral communication—communicating courteously in cosmetology.
3. Auditory diagnosis—the use of sound as a diagnostic tool for auto engine malfunction.
4. Mathematical word-problem solving—(behaviors not trade specific).
5. Visualization—visualizing stationary three-dimensional objects from two-dimensional drawings.
6. Visual diagnosis—determining causes of tire wear.
7. Sensory discrimination—the identification of metals.
8. Performance evaluation—(how to do a good job in any trade).
9. Task performance—giving a basic haircut.
10. Two-dimensional form construction—lettering.

In the second phase of the study the self-instructional units were developed and evaluated. For various reasons, self-instructional units could not be developed for auditory diagnosis and mathematical word-problem solving. The remaining units were developed and evaluated; five of these evaluations supported the hypothesis that self-instruction is efficient and effective for vocational education. The authors feel that the evaluations of the units which did not support this hypothesis were influenced by problems "not associated with self-instructional methodology per se."

Three major conclusions were reached: (a) primary vocational skills do not exist at the level of trade and industrial education; (b) when feasible, instruction should be conducted with non-textual, or simplified textual, materials to take advantage of the favorable attitude of the students toward self-instructional materials, and (c) self-instruction is a significant methodological way to improve the efficiency and effectiveness of vocational education.

Eight specific recommendations for the area of self-instructional methods are presented below in the words of the authors:

1. Perhaps the most pressing requirement of vocational education is specification of educational objectives in terms of student behaviors that are observable and measurable. It is recommended that behavioral specification of objectives be given very high priority.

2. The potential for self-instructional units and systems for vocational education is perhaps, at the present time, greater than for any other educational area. It is recommended that development, evaluation and implementation of such systems be undertaken at an increased rate.

3. A problem of increasing importance in vocational education is the widening discrepancy between what students can do upon exiting from the educational system and real-world performance requirements. It is recommended that efforts designed to establish and implement methodologies for reducing these discrepancies be given serious consideration.

4. It appears that a practical approach to improving the efficiency and effectiveness of vocational education would be the development of instructional units (preferably employing self-instructional methods) plus the adaptation of existing instructional units for those instructional areas commonly found in many trade programs. For example, imaginative, multi-media instructional units on common hand tools or power tools would have wide applicability in vocational education. It is recommended that efforts directed toward making such units available and directed toward implementing them within vocational education be undertaken.

5. Problems exist concerning how to formulate effective and efficient trade programs capitalizing upon existing instructional materials and methodologies. It is recommended that research and developmental efforts directed toward establishing flexible, general procedures for formulating such programs be undertaken.

6. Vocational education appears to have some very special requirements such as improving certain fairly basic skills (e.g., reading). It is recommended that these special problems and their implications be investigated and resolved.

7. Because of the very specific behaviors that are the instructional objectives of vocational education, it is recommended that high priority be given to specific efforts designed to improve specific methods required to bring about these behavioral changes.

8. Finally, because so many of the instructional materials of vocational education are oriented toward subject matter rather than student behaviors, it is strongly recommended that future efforts toward instructional-material development be concerned with making these materials at least partially oriented toward student behaviors.

The value of self-instructional materials is widely accepted. The role they can play in assisting vocational education to meet the needs of the economy can not be overemphasized. With increasing demands for skilled workers in all areas and the resultant pressures for more teachers, the use of self-instructional materials is vital.

The Evaluation of Occupational Education Programs. Jerome Moss, Jr. University of Minnesota. Research Coordination Unit in Occupational Education. Technical Report. September 1968.

Moss prepared this paper to encourage productive evaluation studies by exploring program evaluation and providing a conceptual framework for evaluative efforts in vocational, technical and practical arts education. His treatment covers the following areas of concern: (a) the importance of program evaluation; (b) some causes of past inactivity in evaluation; (c) a definition of program evaluation; (d) program outcomes (or evaluative criteria); (e) program characteristics; (f) two roles of program evaluation; (g) evaluation as a part of the educational change process, and (h) some research approaches to evaluation.

Evaluation is important, according to Moss, because it enables educators to make intelligent decisions about program development and operation theories and practices. "We have a moral obligation to students to provide them with the best programs possible. . . . We have a social obligation (to use the public investment) with the greatest efficiency for society's ultimate welfare . . . (and) we have a scientific obligation (to develop) a science of instruction, without which we shall continue to operate by hunches, authority, tradition, and personal experience."

Why then, Moss asks, have there been so few evaluative studies since the passage of the Vocational Education Act of 1963? Political, social, economic, and technical impediments have caused this inactivity. Now, however, the Advisory Council on Vocational Education demands greater efforts at evaluation. In fact, social scientists from other disciplines are interested in the evaluation of manpower training systems. We must evaluate our own programs now to insure that the proper criteria and methodology are employed, and to insure that the decisions made will properly reflect our educational perspectives.

In his definition of program evaluation, Moss describes the students as individuals, the program with different characteristics, and the effects of the outside environment upon the students. The interaction of these three produces the actual outcomes which are "student or ex-student behaviors, and the effect of those behaviors on the school, the community, the economy, society, etc. and other direct consequences of the program for teachers, administrative patterns, other students, etc." These actual outcomes must then be compared to expected outcomes, or actual outcomes from other situations, so that the merits of the program under observation can be judged.

The program outcomes, or evaluative criteria, should be measurable and Moss presents guidelines for a classification schema which can be applied, the main points of which are listed below:

1. The criteria must be the products of instruction.
2. The criteria should include the potential outcomes relevant to each of the philosophies under which vocational, technical or practical arts programs might be operated, e.g., to relieve poverty, to meet a labor shortage, to meet a continuing labor need.
3. The expected outcomes should be stated at several levels from the very general to the very specific, e.g., from philisophical statements to items on a questionnaire.
4. The programs should be consistent with the philosophical positions, and should be flexible enough to reflect variations in program characteristics.
5. The programs could be easily weighed if monetary values were assigned to program outcomes so that per-student-dollar-benefits of different programs could be directly compared. The difficulty is in obtaining monetary values which are valid. Moss suggests an alternative of arbitrarily assigning monetary values, in a consistent manner, of course. The classification schema itself should contain a time axis (representing time elapsed since the education was provided), a target axis (distinguishing between expected student outcomes, and indirect, secondary, or feedback outcomes anticipated in other people, agencies or institutions), and a type axis (distinguishing between types of expected outcomes, e.g., educational, psycho-social and economic criteria).

According to Moss, the program characteristics, or sub-systems, include the teacher, content and content organization, methods and techniques of instruction, facilities, etc., and the effects of these sub-systems may be included as independent variables in any evaluation study. In this part of his discussion Moss notes that comparisons of the sub-systems should be made in such a manner that program outcomes can be related to individual characteristics. He also emphasizes the importance of measuring the costs of resource and time inputs in each program, stating that the cost-per-unit outcome is a measure of the efficiency of a program and makes it possible to compare different programs.

Moss describes two basic sets of questions that may be answered by a program evaluation, depending upon the reasons for conducting the evaluation. They are such questions as (a) "How well is the program accomplishing what it set out to do?" and "How can it be improved,?" and (b) "Which of two programs is better for my purpose?" "What could I gain and lose by adopting the new curriculum?" The decision as to which answers are being sought will be one determination of the criteria to be used in an evaluation study.

Moss describes some research approaches to evaluation such as formative evaluation, expert and self-evaluations, follow-ups, experiments, interrupted time series, and regressional analysis. He concludes his paper by reviewing his recommendations for the types of data that should be measured, and then stating that the states will have to decide which variables they want to utilize, how they will measure them, and how they will collect, store and retrieve the measures.

Strategy and Methodology for Self-Initiated Evaluation of Local Programs of Vocational Education. Harold M. Byram. Michigan State University. 1968.

This paper was presented by Byram at the Conference on Evaluating Vocational and Technical Education, which was held in Atlantic City, N.J. on Oct. 8, 1968. The Conference was sponsored by the W. E. Upjohn Institute for Employment Research. Byram focused his attention in this paper on evaluation at the local district level and the comprehensive secondary and post-secondary schools therein; it is not meant for application to large metropolitan systems. He also placed the emphasis on vocational rather than technical education, defining vocational as "specialized education designed to prepare future workers for initial employment or to enable workers to improve and progress in their vocation." However, he recognizes the close relationship of all formalized education and guidance to occupational preparation, and thus indicated he was also speaking of "occupational education," defined by Herbert M. Hamlin as "education designed to contribute to occupational choice, competence and advancement."

Byram used the term "program" to mean all the curricula and other provisions of a school system which has a major emphasis on vocational objectives. His basic strategy and methodology have several underlying assumptions: (a) there is a desire on the part of the school systems and local communities for self-initiated evaluation of their programs, using a systematic and organized approach; (b) the one overriding purpose of the evaluation is to improve the "scope, availability, quality and/or some other basic goal" in the existing program; (c) there is a recognition of the usefulness of outside consultative services, and (d) the evaluation will be a major staff and citizen project which, it is hoped, will become a permanent activity.

The strategy of local program evaluation which Byram advocates concerns itself with obtaining competent local leadership to take the responsibility for organizing and directing the effort. The leader chosen should already be recognized as competent in a coordinating role for the school vocational education program; he should be accountable to a chief or assistant school administrator, and he should have an assistant or research associate to make up the local leadership team.

Byram emphasized that the program should be a cooperative effort of those responsible for the program (teachers and administrators) and those affected by it (employers, former students and citizens). The output of the program will be the main concern, but the input will be evaluated also in order to see how it can be improved to produce better outcomes.

The major objectives of the program have to be identified and the criterion questions which are related to the objectives must be set up, keeping in mind that the questions should be concerned with the local situation, and not the national scene.

"The evaluation will be as good as the methods used in obtaining sufficient, accurate, valid information bearing on criterion questions, and no better," Byram remarked as he introduced his discussion on the methodology of local program evaluation. The essential elements of the methodology include administrative commitment or adequate support for the costs and time of the evaluation and consideration of recommendations that may result; competent faculty and citizen leadership; faculty-citizen understanding of the philosophy of vocational education; the organization and use of committees, and the provision of time for the faculty and their leaders to work at the task.

The first task is to orient the faculty and the community; the second is to form a staff committee to direct the work. The staff committee will decide on the framework of the evaluation effort and list the objectives of the evaluation and the activities to be conducted. The next step is to use the advisory services of citizens' committees and consultants to gather the information necessary to answer the criterion questions. The final step is to interpret the information and arrive at answers to the criterion questions which will be translated into program improvement recommendations. The recommendations will be made to the board of education, the chief administrator and his assistants, and the teachers.

In conclusion, Byram discussed methods of working with faculty members and obtaining citizen involvement in the evaluation program. He also presented specific recommendations for follow-up of former students, interpreting student and employer information and opinions, interpreting the needs of the society, and studying the local administrative structure.

(Two studies of interest in this area which were written by Byram are *Evaluation of Local Vocational Education Programs, Second Edition: A Manual for Administrators, Teachers, and Citizens,* March 1968; and *Evaluation Systems for Local Programs of Vocational-Technical Education: A Developmental Education Research and Teacher Education Program Based on a Clinical School Concept,* October 1968. (See bibliography for further details.)

An Evaluation of Vocational Education for Disadvantaged Youth. John J. Austin and Donald A. Sommerfeld. The Public Schools of the City of Muskegon. Muskegon, Mich. April 1967.

The Department of Labor describes a disadvantaged youth as an individual between the ages of 16 and 20 years who is out of school, out of work, comes from a seriously impoverished environment and cannot benefit from regular occupational training. Aware that the number of such individuals is increasing yearly and the number of low level entry jobs in the United States is declining, the federal government has launched a major rehabilitation effort to train the disadvantaged for jobs. One such program is funded under the Manpower Development Training Act of 1966.

Austin and Sommerfeld express the importance of assessing the progress of each program in order to raise the level of quality of the services offered and fill the major gaps in the total effort. Research in this area has been lacking, due to the newness of the programs. Clear-cut guidelines and evaluation models are also lacking.

The authors hope that this report will "serve as both a model for measuring the effects of a program geared to train disadvantaged youth and will also provide meaningful information about the value of such training programs." This report is focused on the evaluation of the effects of the basic and vocational education program that is provided by the Muskegon Area Skill Training Center for disadvantaged youth, under the youth provisions of the MDTA.

Austin and Sommerfeld attempted to describe four major areas:

1. Evaluation of change in intelligence and aptitudes.
2. Evaluation of change in basic skill achievement.
3. Evaluation of change in personality characteristics.
4. Evaluation of change in occupational status, including cost-benefit analysis.

Pre-training testing was performed on 189 youths from April through July, 1965. Post-training testing was accomplished from April through July, 1966 on 180 (95 percent) of the original group. The control group, which consisted of 41 non-trainees and 48 youths who dropped out of the program during the first three months, were tested at the same time with 81 (91 percent) of the group who took the first test being available for the second test. Instruments used in the testing were the WRAT (Wide Range Achievement Test), the WAIS (Wechsler Adult Intelligence Scale), and ICL (Interpersonal Check List—Muskegon Form), the GATB (General Aptitude Test Battery), and the "Clinical Factor Analysis of the WISC, WAIS, and WRAT Scales," by Joseph Jastak.

The accompanying chart briefly indicates the hypotheses put forth in this study and the resultant findings.

HYPOTHESIS	CONFIRMED	NOT CONFIRMED
I. *Primary Objective:* Assessment of the overall effect of vocational and basic education on disadvantaged youth.		
1. Mean scores on the tests will be significantly higher after training.	XXX	
2. Mean scores on the tests will be higher for trainees than for non-trainees.	XXX	
II. *Secondary Objective:* Identification of pattern of change taking place in the different categories of disadvantaged youth that enrolled for training.		
1. Girls will how greater improvement than boys in all areas of change measured, except performance I.Q.		XXX
2. Older trainees (19-21) will show greater improvement than younger trainees (17-18) in all areas measured.		XXX
3. Trainees with higher formal education (grades 10, 11, 12) will show greater improvement than those with lower formal education in all areas measured, except basic achievement.		XXX
4. Trainees with high original I.Q. will show greater improvement than trainees with low original I.Q. in all areas measured.		XXX
5. Trainees with high original altitude or potential I.Q. will show greater improvement than trainees with low altitude, or potential I.Q. in all areas measured.		XXX
6. Trainees having dependents will show greater improvement than trainees without dependents in all areas measured.		XXX

Austin and Sommerfeld presented some interesting conclusions which are summarized below.

1. Research should be carried out to determine if more of the annual school dropouts would enter a vocational-occupational training program if space were available and if 16 year olds who are presently not eligible due to the one year out-of-school requirement could profit from training, and if longer (two years or more) training programs would be beneficial for some trainees.
2. Future research designs should provide for control groups of students who stay in high school and who are not interested in skill center training. Long range follow-up is recommended to determine the relationship of training to overall increased social competency.
3. An evaluation unit with competent staff should be part of every educational program in order to measure and appraise any behavioral outcomes.
4. The need is recognized for tests and measuring instruments that can be easily administered, individually or in small groups, and which do not require reading ability and which can provide profile scores and be computer-scored for research purposes.
5. Research is needed on the relationship of basic education, particularly in the language skill and value areas, to employment and income.
6. Research is also needed on the concept of disadvantagement as a process which varies from one developmental stage to another and from one individual to another. This research should define and reveal ways to measure, prevent intervene, and provide compensatory services.
7. The motivational aspects of money, in the form of a training allowance, as opposed to grades or scholarship honors or awards, could be investigated.
8. Training programs should be studied to determine curricular qualities which are common from one center or project to another to determine how they influence learning and behavior.

Program Evaluation. John K. Coster and Loren A. Ihnen, North Carolina State University, Raleigh. Pages 417-433, Review of Educational Research, October 1968. American Educational Research Association, Washington, D.C.

In this chapter of the issue of *Review of Educational Research* which is devoted to vocational, technical and practical arts education, Coster and Ihnen present a discussion of research related to program evaluation conducted since 1962. The two most significant national studies, according to Coster and Ihnen, are the report by the Panel of Consultants on Vocational Education, U.S. Department of Health, Education, and Welfare, in 1963, which criticized the lack of research in vocational education; and the report by the Advisory Council on Vocational Education which, in 1968, discussed the "inadequacy of state and national evaluations for understanding what had occurred under the Vocational Education Act of 1963."

The increase in federal expenditures authorized by the 1963 Act carried with it the obligation to evaluate the

impact of these federal investments on people and programs. Melvin L. Barlow discussed this need in his article, "Why National Reviews?," which appeared in the *American Vocational Journal* 42:10-11, December 1967.

The authors note that the majority of the research conducted during this period was either master's or doctor's theses or unpublished staff studies which are not included in this *Review*. There were, however, several studies conducted, some of which are given mention below.

Max U. Eninger conducted a large-scale investigation of the product of vocational and technical education at the secondary school level, the results of which are reported in *The Process and Product of Technical and Industrial High School Level Vocational Education in the United States: The Product*. Pittsburgh, Penna., American Institutes for Research, 1965, 445 pages.

Jerome Moss, Jr., studied *The Influence of Industrial Arts Experience on Grades Earned in Post-High School Trade and Technical Curriculums*. Minneapolis, Minnesota Research Coordination Unit in Occupational Education, University of Minnesota, 1966, 38 pages.

Harold M. Byram prepared a guide for administrators and teachers titled *Evaluation of Local Vocational Education Programs*. East Lansing. Bureau of Educational Research Services, Michigan State University, 1965, 81 pages.

In addition, Coster and Ihnen present a detailed review of three major cost-benefit analysis studies of vocational and technical training programs. They are *Vocational Education: A Study of Benefits and Costs*, by A. J. Corrazzini, Princeton University, 1966, 126 pages; *The Role of Technical Schools in Improving the Skills and Earning Capacity of Rural Manpower: A Case Study*, by Svetozar Pejovich and William Sullivan, Office of Manpower, Policy, Evaluation, and Research, U.S. Department of Labor, Washington, D.C. September 1966, 19 pages; and "Costs and Returns for Two Years of Post Secondary Technical Schooling: A Pilot Study," *Journal of Political Economy* 75:862-73, by Adger Carroll and Loren A. Ihnen, December 1967.

TOPIC FIVE: Studies Previously Reported

See Bibliography for information on availability of complete studies

Guidance Programs and Their Impact on Students: A Search for Relationships Between Aspects of Guidance and Selected Personal-Social Variables, by Armas W. Tamminen and G. Dean Miller. University of Minnesota, Duluth, Minn. 1968.

The rapid expansion of guidance programs in American secondary schools within the past decade led to this study. It begins the search for evidence of the total impact of these programs on the students, in the form of investigation of relationships between guidance programs in various secondary school settings, and personal and social variables thought to be influenced by guidance efforts. The strength of the relationships between guidance activities and presumed outcomes of guidance were measured. The hypothesis was that students exposed to varying amounts of levels of guidance activity will achieve guidance objectives in varying degrees. There was no attempt to assess the impact of counseling or any other single guidance function on specific students; a random sample of seniors was selected to represent the impact of guidance on the entire student body.

The two major tasks undertaken were to identify and measure various aspects of guidance programs, and to search for interrelationships among these measures. Using approximately 200 measures, the authors collected data on guidance efforts, situational variables that might have bearing on guidance outcomes, and presumed outcomes of guidance. There are statistics in the report on 84 schools, 1,116 seniors, 869 graduates, 151 dropouts and the counselars and guidance programs. All the seniors took tests and both seniors and school staff filled out information and opinion questionnaires; other information was obtained from State Department of Education files, the Statewide Testing Program, and the schools. The variables were classified as "situation," "input" and "outcome," and were divided into subcategories with the following titles:

1. *Six "situational" scales*—large size; academic atmosphere; culturally advantaged community; proximity to post-high school training, and advantaged family.
2. *Eight "input" scales*—low level of guidance activity; problem-centered counseling; superficial student-counselor contacts; emphasis on nonguidance duties; good counselor image; new program with minimal facilities; discontented counselor with unimproved program; well established and supported program.
3. *Eight "outcome" scales*—general satisfaction with guidance; good holding power; high general and academic self-concept; high incidence of continued education; lack of helpfulness of guidance, as recalled; vocational immaturity and underachievement; diffident vocational aspirations; unrealistic goal setting.

Using a stepwise multiple regression technique, the best combination of four to six predictor variables was found for each of the outcomes; intercorrelations and multiple regression findings were found for one-counselor schools, for high ability and low ability schools, and for selected data from the follow-up study conducted a year later.

1. Differences in the personal-social variables ("outcomes") result from many different factors, none of which is dominant.
2. The best-established guidance programs which have a high level of activity and contact with the students are generally found in areas where there are students of high ability who come from advantaged homes in advantaged communities, and the school climate encourages scholastic excellence.
3. Where the students have low ability and the climate is anti-academic, the counselors tend to spend more time with problem students and little time with the student body as a whole.
4. There are two guidance factors which are relatively

independent of economic and environmental factors: "Good counselor image" and "superficiality of student-counselor contacts."

5. The one guidance "input" which has effects is "counselor image," or the personality of the counselor as seen by the student, e.g., acceptance, respect for and interest in students and staff, openness and warmth, reaching out to the students.

6. Other counselor variables that are related to outcomes are the number of professional organizations to which the counselor belongs and the manner in which he schedules his time among his duties. Guidance program variables that relate most to outcomes are student-counselor ratio, longevity of the program, and budget for guidance.

7. Satisfaction with the guidance program among administrators, teachers and students is largely a function of the amount of support of the program. This relationship is strongest in low-ability schools.

8. Most of the "outcomes" measured appear to be only slightly, if at all, related to guidance efforts. Personal, economic and other "situational" factors seem to have more bearing on these outcomes.

9. One year after graduation, average training success is related to average satisfaction with a person's life situation; neither is related to guidance efforts.

The modest relationships between guidance programs and expected results leads to a serious concern about the amount of impact formal guidance efforts have on students. However, students continue to have problems, and the authors imply that the guidance programs should be improved, not removed. They also consider the question of whom the guidance program is for—the very small proportion of students who avail themselves of it, or *all* the students? The authors' point of view is that the program should benefit all students, and they have, accordingly, defined the counselor's role to include the traditional assistance to those individual students who experience difficulties, as well as the provision of leadership in making the school environment conducive to student development, and "the provision of a strong, warm, humanizing influence in the midst of the complex business of mass education."

To facilitate necessary changes, the authors ask that counselors carefully consider the basic reasons for having guidance programs, their own roles in the programs, the relative value to time spent in remedial, preventive and developmental aspects of guidance. Counselors should search for ways to "upgrade their research and human relations skills and interpersonal sensitivity and effectiveness in order to equip themselves to play a larger role in improving and humanizing education as well as helping individuals."

One of the input factors in one-counselor schools, was "teacher-oriented guidance," with the variables loading into it being the number of years the person had been a teacher prior to becoming a counselor, and a negative-loading coming from the amount of time spent in personal counseling. This is of interest because the loadings indicate that these two phenomena are related and because the factor was related (a) to perception of the counselor as unhelpful (b) to underachievement, and (c) to under- and over-aspiration. Such a finding needs cross-validation, but it does have implications for the discussion within the profession about the importance of teaching experience for counselors.

A further recommendation of the authors is that counselor educators look at their programs with a view toward re-examining the basic ideas, rather than merely adding courses to lengthen the preparation time. A way needs to be found to make inservice training attractive enough to encourage counselors to improve their skills. They strongly urge that school administrators recognize the possibility that counselors can play an exciting, broad and effective part in facilitating the whole educational endeavor; administrators should provide strong support and encouragement to such participation, for example, through supporting inservice training.

In summary, the authors recommend that guidance counselors think deeply about the value of allotting less time and effort to individual students in attempts to deal with problems caused by negative influences in the school environment, and allotting more effort toward doing all he can to bring about changes which facilitate healthy growth. The authors recognize that action of the superintendent, school board, or other school authorities is necessary to bring about many of the needed changes; but, counselors can use their own knowledge of the situation and their research and human relations skills to assist in providing a needed impetus for the desired changes.

Evaluation and Final Report: National Adult Basic Education Teacher Training Program, Summer 1966. Two Volumes. Robert J. Pitchell. National University Extension Association. Silver Spring, Md. June 1968.

At the time the National Adult Basic Education Teacher Training Program was conducted, approximately 24 million Americans over age 18 had less than an eighth grade education. Surveys conducted in 1962 and 1963 had indicated that the median level of education for the unemployed was 10 years; one-fourth had not completed the eighth grade; and two-thirds had not finished high school.

The Economic Opportunity Act of 1964, the Adult Education Act of 1966 and the Elementary and Secondary Education Act of 1966 provided the legislative means to combat this deplorable condition by encouraging basic educational programs for adults to help them "overcome English language limitations, to improve their basic education in preparation for occupational training and more profitable employment, and to become more productive and responsible citizens."

Funds were allotted among the states for adult basic education (ABE) programs, and also some funds were set aside for "providing teacher-trainer grants." At the invitation of the U.S. Office of Education, the National University Extension Association (NUEA) submitted a proposal to provide intensive training for 1,060 ABE teacher trainers. The proposal was accepted and funded under the Economic Opportunity Act of 1964 at a cost totaling $1,055,000.

In preparing the program, NUEA recognized that the educationally disadvantaged have special learning characteristics. Thus, along with some basic teaching techniques, the ABE teacher must have additional techniques to establish the rapport and empathy necessary to teach the adult learner. Some of the characteristics of the adult learner are:

1. He tends to be more rigid in his thinking than a younger learner.
2. He usually requires a longer time to perform learning tasks.
3. He is more impatient in the pursuit of learning objectives.
4. He is used to being treated as a mature person and resents having teachers talk down to him.
5. He suffers more from being deprived of success than does the young learner and is motivated more by the usefulness of the material to be learned.

The adult learner also has some handicaps which cannot be ignored by the ABE teacher. A few of them are:

1. He has a lack of self confidence; he often feels inadequate and unable to learn and compete.
2. He is afraid of school—afraid of failure and of being tested.
3. He lives in conditions of economic poverty—he may have neither space nor quiet for outside reading; poor nutrition may cause apathy and sleepiness in class; other physical handicaps such as poor hearing or vision may not be corrected.
4. He is probably below average in scholastic aptitude.
5. He is culturally deprived—he may be completely unaware of the existence of nearby libraries, or be afraid to enter them, not knowing how to act.
6. His value system is different from that of adults of the middle class.
7. He has weak motivation because he has so far failed to achieve and recognize values of success and, thus, he may have an attitude of almost complete resignation.
8. He is unusually sensitive to nonverbal forms of communication because he has a limited vocabulary and, thus, he tends to judge more by actions than by words.

In 1966 there were less than 500 ABE teachers in the U.S. NUEA was able to support nine four-week training institutes for 982 ABE teacher-trainers. The institutes were held in each of the USOE regions at the following universities: University of Connecticut, State University of New York at Buffalo, North Carolina State University at Raleigh; Florida State University; Wayne State University, University of Missouri at Kansas City, University of Texas, University of Colorado, and University of California at Los Angeles. The program was then evaluated from data collected in the form of questionnaires, surveys, reports, and field interviews conducted during and after the institutes.

The curriculum which had been produced by the national curriculum advisory committee was meaningful and relevant to the participants, who were themselves considered to be an elite group having all the characteristics of master teachers. It was noted that, with the proper leadership by a federal agency, new technology and new instructional method and materials can be rapidly introduced into a teacher training program. However, it appeared that generally neither university staff, state and local administrators nor adult basic education teachers are proficient in the use of new equipment or instructional methods.

The author did recognize the mature way in which the current leadership at institutions of high education, state educational agencies and local schools selected the participants, made use of educational technology and innovative techniques and gave emphasis to curriculum. Pitchell also noted the mature response of the teachers who participated in the program, remarking on the emphasis given in the curriculum to understanding the ABE student and teaching reading and personal-social skills.

As a result of the program, NUEA made eight recommendations, which are listed below:

1. *National teacher training needs.* The Office of Education and other federal agencies should seriously explore the use of the accelerated national teacher training model for other program areas in which personnel are in short supply on a national scale.

2. *New technology and instructional methods.* While it will always be true that additional research and experimentation will be necessary in these fields, it is also true that line units must be thoroughly exposed to the capabilities of existing equipment and the results of recent experiments, The Office of Education should follow up its strong, coordinated effort in 1966 to introduce the use of new technology and instructional methods and materials. A special pre-institute program for university staff and state and local administrators who will supervise local ABE programs appears to be one of the indispensable elements of an effective overall program in the future.

3. *Graduate and undergraduate programs.* The serious deficiency of adequately trained teachers of adult illiterates is nationwide. The need for rapid growth of undergraduate and graduate curricula in adult basic education at universities in every region, as well as more summer institutes, to relieve current shortages is imperative. The Office of Education should internally review and coordinate its authority to fund summer institutes and strengthen undergraduate and graduate programs in this field.

4. *Follow-up system.* No four-week, educational program can teach people how to organize and administer specific, individual inservice training programs in a variety of situations. The training cannot be comprehensive enough, even when it goes beyond the teaching of principles and concepts. When there is an immediacy to the implementation of what is learned in a training program, some type of follow-up activity is necessary. Year-round availability of university specialists in adult basic education as resource persons or consultants to state and local personnel would go a long way toward maximizing the impact of the summer institutes.

5. *New types of institutes.* The need for additional types of institutes was perceived by program administrators and teachers alike. Planning for such institutes should be based on special, up-to-date surveys of regional, state and local

needs conducted by the Office of Education each year before proposals are initiated or funded.

6. *Length of institutes.* Participants in the summer institutes strongly recommend that the length of the institutes either be maintained at four weeks or increased in duration.

7. *Academic credit.* Participants were almost equally divided about their desire for academic credit for summer institute work. Participating institutions of higher education should be urged to operate the institutes on a non-credit basis but with options for credit upon the completion of such additional work as each institution may require for credit work.

8. *Lead time.* Experience at every level confirmed the need for at least a six-months lead time in order to prepare evaluation instruments properly, recruit and screen participants thoroughly, hire the best staff, obtain necessary equipment, and materials or utilize available consultants.

Volume II contains the appendix of materials which are of significance to the validity of the evaluation and to potential users of the data which were collected in the course of the study.

Standards and Evaluative Criteria: Community Colleges and Technical Institutes. Howard Thompson. State Board of Education, Raleigh, N.C. Department of Community Colleges. January 1969.

The basic conception and subsequent development of the guidelines for the evaluation of the community college and technical institute programs in North Carolina originated at the North Carolina State University at Raleigh six years ago. The principle on which the development of the evaluation guidelines was based was the complete involvement of the teaching, supervisory and administrative staff of the subject institutions. These people met as committees and held conferences during this six-year period, and developed these standards and evaluative criteria which are considered to be fair to use in judging the quantity and quality of the programs in North Carolina.

PLAIN TALK

Evaluation as the "closing curtain." Too often, evaluation and appraisal are the last gasps of a project or program. This condition may be the case with this last issue of *Research Visibility* for this school year, with its emphasis upon evaluation as it is related to research. No doubt, the evaluative process may be viewed from at least two points of inspection—the *logical* and the *psychological.* Traditionally in education we have adhered to the former and delayed appraisal until the *grand finale,* or last curtain. At other times we have smoke-screened the process with the comment that the best test or evaluation lies in the performance of the job under actual working conditions. This fact is to say that particularly with job skills and motor performance perhaps the most valid test is in the "doing" or success or failure.

It is well accepted that our evaluation should be continuous and on-going, and not reserved to pencil-and-paper testing techniques. At any rate, the press is on for more exacting evaluation of the progress of individual students and programs in *both* educational and economic terms. *Economic* evaluation is a late bloomer to vocationalists, and there may be a tendency to resist it behind the facade of global educational objectives which defy any appraisal Realistically in the marketplace and competition for funds to support education and all of the other public welfare programs, the vocational and technical education program must be described and justified in money-value (economic) terms.

There is every reason to believe that a dollars-and-cents appraisal of vocational education will go a long way toward proving that it is indispensable to both individual citizens and to our entire society. To momentarily forget the professional research challenge of evaluation and the improvement of programs, there is no escaping the permeating spirit of appraisal in the new VEA '68, its network of relationships in the functions of the national and state advisory councils, and the construction of annual and long-range plans of the States.

And it is later than we think in terms of another form of evaluation—*accreditation.* The term in this sense is used in its broadest form, i.e., accreditation of *all* programs of vocational and technical education, on all levels, in the public and private sectors, and in business and industry. There seems to be little doubt that evaluation and accreditation are intimately related. The current feeling is running to keep the two processes distinctively separated at least for formal purposes. Finally, there is the purist notion which parts company with formal evaluation and accreditation and places final faith in *self-evaluation* as the most beneficial process to students and programs. Obviously, the profession will have its opportunity, full blown, to flex its muscles on all three forms of the process. Possibly the most penetrating question of interest to researchers may be the extent to which research is involved in the total effort.

The promise of the future—some interests and new directions. "Plain Talk" concludes on an introspective and forward-looking note. Fortunately through the medium of the National Conference on Vocational Research held at Oklahoma City in February, there is present access to an informal statement of USOE Bureau of Research interests of the future. David S. Bushnell, director of the Division of Comprehensive and Vocational Education Research (DCVER), supplied *RV* with a copy of his presentation at the Oklahoma Conference. His informal, unofficial statement is both an appraisal of OE's efforts of the past and a general roadmap for the future; the statement will be

available in the report of the national conference in the near future.

Seven possible new areas of focus which are characterized by major social and cultural problems may make up OE's priorities of the future: (a) urban education, (b) vocational and occupational education, (c) equality of educational opportunity, (d) early learning, (e) relevance of general education, (f) professional and continuing education, and (g) educational finance, and organization. Note particularly the assignment of high priority to vocational research. Between the lines one is not hard put to relate vocational and technical education to the other points of focus with the possible exception of early learning.

The new framework is not Bushnell's personal hobbyhorse; it is the cooperative viewpoint of Bureau thinking, OE Research Advisory Council, and outside education researchers. All of the focus is intimate with the general purpose of improving instruction and the educational process. It should be made clear that the seven priorities are *not* official, not formally announced with Bushnell's statement, and certainly subject to change.

Looking Back at Priorities. Bushnell indicates the strong support of DCVER for individual research and development projects:

> Approximately 80 percent of the over $60 million spent on research and development activities during the last four years has been invested in individual studies and projects in contrast to investments in R & D Center activities or Research Coordinating Units at the state level. During this time spent, some six areas of emphasis have characterized the scope of vocational education research program as authorized under Section 4(c) of the Vocational Education Act of 1963. These six areas of priority emphasis are: (1) Program Evaluation, (2) Vocational Curriculum Improvement, (3) Vocational Education Resource Development, (4) Vocational Guidance and Career Choice Processes, (5) Organizational and Administrative Practices, and (6) New Careers.

The above have been the considerations of DCVER during the past four years. Bushnell continues, "These priorities, of course, have been modified and adapted to the discoveries and results of research sponsored during this four-year period. It is our expectation that even these priorities will be substantially modified and overhauled during a period during 1970 in line with Bureau-wide priority setting effort during that fiscal year."

RV's commentary on the Bushnell statement is both enthusiastic and speculative, the latter from a legislative-political point of view especially. Certainly in the infant stages of vocational research since 1964, DCVER had to walk before it could run, and research sponsorship is a strenuous, expensive business. It had to do business via the proposal-making process and grantsmanship, and the sophisticated proposers could get richer and the more mundane poorer.

In terms of accomplishments, DCVER has operating two Research and Development Centers, some 47 Research Coordinating Units throughout this country, a Vocational Education Information Clearinghouse, and 5,000 teachers, administrators and researchers have been trained through 4(c) grants. This product is meritorious, and the momentum of this start should not be lost. The new VEA '68 may call a different tune after the legislation is fully assimilated and the regulations carved out. Undoubtedly, the new law will require new sign-off authority on the parts of the Bureau of Research and the Bureau of Adult, Vocational and Library Services. Hopefully, this process will require close coordination and communication both in-house and between Federal and State echelons of operation.

Politically, there is a different cat to skin, and if the situation is not corrected most of the posting of priorities and past progress can be spared. The research section 131(b) of VEA '68 (formerly 4(c) of Public Law 88-210) was authorized for $56,500,000, but current appropriations for it are $1,100,000. In terms of the nature and amount of vocational research needed the appropriation is far less than meager. Unless the vocational community and its friends invite the attention of Congress to this enormous disparity and have it corrected a large segment of the current research enterprise will be in serious trouble, possibly abandonment of at least a noble start of the past four or five years.

The implication should not be lost that *state* support should also increase and share in the cost of the research effort. Notwithstanding the possible gloomy outlook of the predicament, the lesson we should learn is crystal clear. Research visibility has a political counterpart; its importance, value and relationship to vocational and technical education must be made truly *visible* to the members of Congress. If our public relations in research are not up to this task and accountability, we will have little to worry about—little support and appropriations, and little new knowledge to guide the program of tomorrow.

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